

For TANDY Color Computer Users

MAY, 1988

\$4.50

# Softgold

# THE NEXT PHASE

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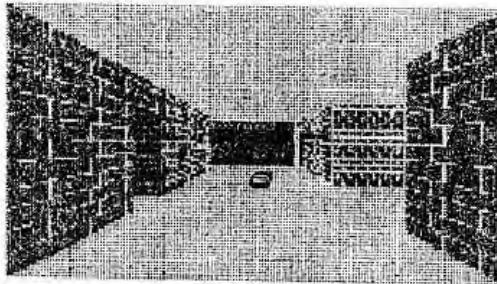


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## EXETER A Dungeons & Dragons Experience Color Computer 3



Author: G J Doak  
 Marketing: Blaxland Computer Services Pty Ltd  
 (047) 39-3903

Minimum System Req:

128k Color Computer 3

Program Enhanced with 512k



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Magic Box Software

**WS Help 3**  
User's Manual

Complete memory-resident help system for WordStar 3.00



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The ultimate memory-resident help system for MS/PC-DOS users, covering DOS 2.0 - 3.30



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# Softgold

MAY 1988 FOR TANDY Color Computer Users

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## ABOUT SOFTGOLD

This magazine is for computer users - especially Tandy 1000 2000, and 3000 series users. Softgold Magazine is just as valuable to IBM computer users.

The material in this magazine is supplied by our readers. It is volunteered and remains the property of the individual authors unless specifically stated to the contrary.

Authors can be contacted by placing your letter in a self addressed, stamped envelope care of GOLDSOFT PUBLISHING.

Golddisk is our monthly disk which includes all the programs you see in this magazine, plus the Computer Resource Database.

You can order your copy of Golddisk from the store where you purchased this magazine, or you can order Golddisk direct from us. Details are on the subscription page.

## THE CREW

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(07 288 1413)

DEADLINES: 7th of the preceding month

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## This month's Tandy specials

On sale at your local Tandy store - the DWP 520 Daisy Wheel printer.

The DWP 520 printer helps you keep your communications neat and error free, at a price that fits into your business budget.

Prints 500 words per minute at 10 or 12 characters per inch or proportional pitch.

The DWP 520 is IBM PC compatible with parallel interface.

Includes courier 10 print wheel and carbon ribbon.

Normally \$1899, save \$600  
26-2800.....\$1299

Also on sale is the PTC-64 Printer Controller.

The PTC-64 allows you to continue computing while you print.

Normally \$349.95, save \$150  
26-1269.....\$199.95

New Tandy 1000 Software  
F-15 Strike Eagle.....\$79.95  
Maestro.....\$79.95  
Sargon III.....\$59.95  
Silent Service.....\$79.95



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# CLUBBERS ROOM CLUBBERS ROOM CLUBBERS ROOM CLUBBERS ROOM

## Welcome To The New Softgold Magazine

As we indicated last month, this magazine is now exclusively for the users of Tandy and IBM compatible computers.

Included in this group are the myriad of Taiwanese clones and the compatibles of other manufacture such as the Commodore PC range.

Softgold can only ever be what you want it to be because we depend on you to supply the articles and programs. Well... that's not quite right as I'm sure our longer term readers will remind me, because Bruce, our very hard working editor currently supplies most of the programs.

But we want the magazine to be a showcase for you, as you learn more about your computer.

Show us what you are learning - either in article or program form - the more you share your knowledge, the more you teach others, and strangely, yourself too.

## Printers

You may have discerned a slight difference in print styles between this magazine and last month's.

This is because we have traded in our ever suffering Tandy DMP 130's - which I must say have been absolutely FANTASTIC, and we're now using the Panasonic KX-P1082, a printer which represents probably the best value in the current market because:

- \* It prints at 160 CPS in draft mode,
- \* It prints at 32 CPS in NLQ (Near Letter Quality) - this article has been printed in NLQ,

\* it has all the normal fonts - Pica, Elite, Semi Compressed, and Compressed as well as elongated and italics forms of the above, and

\* it costs just \$499.00. There is even a cheaper version for \$389.00 which has all the same features but which runs a touch slower!

Look for the Panasonic ad this month for more details.

Whilst on the subject of printers, we've also got a laser printer here, which of course is the precursor to a move to Desk Top Publishing.

We produce our magazines in the current style because we believe it is valid to show you what can be achieved with computers and printers of exactly the same style as the ones you probably operate.

Using that logic, we feel it is

now time to take the next step and move into DTP.

The changes will happen slowly because we're going to evaluate system components as we go. The eagle eyed might note some printouts in this magazine which were done on the laser - I believe the Computer Resource Database is to be one of these.

So what are laser printers like I hear you ask.

Well, we have an Impact here - it's not the top of the range, it's about half way and costs about \$4800 - expensive yes, but this one does produce a very good quality product and it is quite fast.

We've also been experimenting with graphics on the Impact, and the quality in this area is especially good.

You don't have to go to quite that price to get a laser - there are lasers for well under \$3000 these days, and as with most computer componentry, the price pressure is downwards, so expect some nice printers in the next twelve months in about that pricing area.

## The Computer Resource Database

We trust you will find the first installment of The Computer Resource Database of interest.

There is a lot more information on the Computer Resource Database, but because it is too large for the magazine, we put the whole thing on the monthly edition of Golddisk - which also has the programs from each month's magazine on it.

The printout in this magazine

## APD - The name to remember!



APD's John Poxon

APD's disk drives for the Tandy Colour Computer are causing a lot of interest at present because of the obvious care and attention to detail that goes into every set.

But it is in the IBM world that APD are doing some really innovative things.

They've always been big on interfacing - with A-D converters being one of their stocks-in-trade - but now they are also supplying a range of computers and printers.

So now, if you feel you need to purchase a computer from someone who really knows their computers inside and out, APD are ideal folk to talk to.

CLUB  
ROOM  
GAG  
CLUB  
CLUB  
CLUB

therefore represents a summary of the info on the database.

Obviously, this is just the start. There is more next month - and more again the following month - in fact, we intend to keep the database updated with new info each month. So if you're looking for a program to do a particular job, chances are it will be listed on the database.

Please note that we produce the Computer Resource Database as a service to computer users. The information is as accurate as we can make it, but we do not take responsibility for any information shown in the database. If you happen to sell a product for the computers served by the database, then send us the info - we'll include it! And please also use our magazine to advertise your service!

#### Conf '88

Every year we hold a conference and this year the conference is at Koonjewarre on the Gold Coast of Queensland.

I do hope you'll make a point of being here for this one!

It's Expo time - 1st and 2nd October - and the weather is great at that time of year!

Added to this we have a whole heap of activities and tutorials planned, which should assist you in the use of your computer.

#### Goldlink 642 on Viatel

Goldlink is our national service for computer users on Viatel.

To connect to Viatel, you need a modem, a terminal program and a phone line.

On Goldlink's Viatel service, you can obtain assistance with computer problems, make friends and download software (this service has yet to be made available to compatible computer users at the time of writing).

#### This Month's Specials

This month sees a continuation of last month's offer to User Group members. If you are a paid up 1988 member of a User Group - and you can prove it, then you can obtain a subscription to this magazine for just \$29.95. If you already have a subscription to the magazine, you can extend your sub for the same amount - \$29.95.

Also, to mark the start of the monthly editions of Golddisk, you can purchase a 12 month's

subscription to Golddisk for \$99.00 - or you can charge it monthly. We've been running the same system for another product, CoCoOz, since 1981. All you do is leave your Bankcard, Visa or Mastercard number with us and we automatically send each issue as it becomes available and charge you accordingly.

The system has worked successfully for the past seven years and we're sure you'll be satisfied with it too.

#### Euro-AMI

As our readers will be aware, Tandy computers have always been this magazine's first love. It's more than love - we appreciate the Tandy product for a lot of reasons, not least of which is their reliability.

We've been asked on many occasions to endorse other compatible computers, but we've resisted until now, because most products we've seen either didn't represent good value for money, or they were not reliable.

We were keen to find a product which was available nationally, and which could compliment the Tandy range - not compete with it.

The people at Euro AMI have demonstrated a range of Taiwanese computers to us which meet these strict guidelines.

Like Tandy - but unlike so many others, they work when you get them home, they represent good value for money, and they come with a nice cache of software to get you started.

Euro AMI have dealers in most parts of Australia, so check their ad in next month's magazine for the location of your nearest Euro AMI Dealer.

#### How the Big Wet Affected Us

Steve Youngberry travels from Tara in Queensland to Warwick to pick up the magazines from our printer, and then delivers them here, just so he can be the first in Australia to get one!

Last month he turned his truck into a submarine and was able to make it through lots of flooded creeks to get the magazines to us.

So a special thanks to Steve. Without his persistence, April's mag would still be getting to you!

The big wet is our excuse this month too.

The photocopier cried "enough"

after about five days, various staff members have been marooned at home during the rain, and it will take a little time to make up the days lost.

Springbrook Mountain, near where we will hold Conf '88 this year, in one 24 hour period received a meter of rain! But don't let that stop your plans for Conf '88 - we have a new computer program we'll be using to keep the wet weather away that weekend!

#### Next Month

Next month we will be expanding the Computer Resource Database, and we'll have more on Pascal.

However we're also still keen to obtain articles and suggestions from our readers. So if you have anything you'd like to add, be it a suggestion or a contribution, please do it!!!

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# Sculptor

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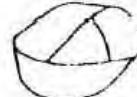
This professional-quality fourth generation language with integral database management used by system developers worldwide is now available to you both at home and at work at an affordable price. Sculptor features:

- \* VERSIONS FOR 100 COMPUTERS AND A DOZEN OPERATING SYSTEMS
  - Supporting from 1 user up to 1000 users
  - Available for all current Tandy models, all MS-DOS PCs
  - All 68000 machines under OS 9/88K (Atari ST, Amiga etc.)
  - OS9 MS-DOS (+LAN) UNIX XENIX QNX YMSI TRIX UNIFLEX etc
- \* TOTALLY PORTABLE APPLICATIONS AND DATABASES
  - All versions compatible at program and data level
  - Develop at home on your Coco and run the system on your PC, mini, supermini at work AND vice versa!
- \* LOW RESOURCE CONSUMPTION, FAST COMPILE & EXECUTION
  - You can begin with as little as 128K RAM & 1 diskette (hard disk highly recommended for full performance)
  - Compiles and runs lightning-fast, even on small systems
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\* New\* Sculptor Starter Pack for the above machines. \*New\* Limited-size versions of each of the above - only \$69.95

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# THEY CALL ME BRUCE

by Bruce Kerr

Hil! You know who again. Well I'm in it this month as well. In what you ask. TROUBLE!

I don't know if it is only me or what but these computers really do get my temper going sometimes. I was going to swear but my Mum reads this article. Hi Mum!

Have you got a hard disk? Have you put 16MB of data on it including some one off stuff? Have you got files on there longer than 360k?

Have you ever tried to back it up to another hard drive when your computer goes for repair?

Well I did and it don't QZCH@\* work. Sorry Mum!

Calmly this brings me to my subject this month. Oh, by the way the Pascal drawing program had to be held over to next month.

This was because no one wrote any procedures for it and I don't know how to so there!

No really, it just got delayed by someone noticing a lot of people have mono-graphics and my programs don't. Well I'm just a colourful kind of guy. Hi Mum!

Same thing for the Structured Programming section. There are some differences between the Basics on different machines which have to be smoothed out.

Where was I? Oh yes, my Mum reads this part first all the time. She says it is the only bit she can understand.

My brother asked if I was sober when I wrote it, and someone asked what I was smoking, but I can't understand why as he knows "The Bruce" does not smoke.

Well anyway where was I? Ah yes, the hard drives. My point about the difficulty in backing up the data stems from the fact I used the DOS commands 'BACKUP' and 'RESTORE'.

As far as the operation goes they work fine as long as the DOS on each machine is the same.

When I try to restore the programs on the second drive which was formatted to 3.1 from a drive formatted to 3.3, an error message 'Incorrect DOS Version' is returned.

The problem now remains, how can I back up the data on the 3.1 drive so I can reformat it to 3.3 and then put all the info back on? Did I hear some one say typical non-compatible computers with messy-dos?

There is obviously an answer but it is not so obvious.

I hear the weather was real good in Melbourne for Moomba. In case you don't know what Moomba is I shall explain.

Moomba is actually the Queensland celebration of Warana because a long time ago when all the Victorians came to Qld. the Queenslanders all went to Victoria to retain their level of intellectual esteem.

Still with me? So when they got there and found no mexicans they had a celebration. All the mexicans found out about this big party and went back home.

The Queenslanders then had to come back to the sunshine state but the Victorians realised they can party down there too and called it Moomba as if they had thought of it.

You may think I jest but it is fair dinkum stuff. Just ask Graham he'll tell you.(yes he is Victorian, couldn't afford the bus fare home from the hole)

In writing this editorial I suddenly realise that the magazine goes to many other countries who probably don't even know where Victoria is.

My brother from the Northern Territory finally answered my question about Victoria's location. He imparted his knowledge in the form of a song about the drinking prowess of the Territorians.

It went something like "Oh we are B----- fine drinker's in

the Northern Territory, from Alice up to Darwin, out west to the VRD.(Victoria River Development)".

Well I thought it was further south than that. Perhaps I'd better ask Mike and Mal Chrysler.

Our overseas readers are probably very lost by now.

They're a weird mob.

Well I would like to send a personal greeting to our readers in Canada, we haven't forgotten the Brisbane Commonwealth games yet.

Dos Vidanya to our Russian readers. (I hope that isn't rude!)

To the New Zealand readers, don't forget your passport and \$20 exit fee with you when you come over for that holiday.

Well, now that I've been nice to everybody, let's get serious on this computer stuff.

Next month I was going to start a hardware column. Things like repainting the reset button in designer pastels but Pierre won't return my calls so that is out.

Seriously though, after all the games this month I reckon we should get into some fair dinkum hacking.

As already mentioned the noncontiguous articles on programming and Pascal will be continued.

There will also be some stuff about the inside of the computers. If you have ever dared to look inside you will probably never care to again.

But for the daring few we'll get into such things as free address ports, buss timing requirements and interupts. If you reckon that sounds good just read the technical manual yourself.

As an adjunct to hardware dabbling and certainly to anyone about to change cards or drives, I shall to impart what little knowledge I have on static safe procedures.

Well known to the technical fraternity is the damage that can be caused by static discharge into MOS circuitry as used in your computer and should be known by you as you pay for it.

If I somehow feel happy between now and then I may put in a game or two, but do not count on it as I get pretty gloomy when the temperature drops below 20 degrees C.

Well that is good night from me and good night from him. It is 5am now so I had better get to bed so I can get up to go to work.

The Bruce.

P.S. I am working on Golddisk #5 so stay tuned, but first I have to fix a couple of insects in #1 and #2. See ya!

# 30 NEW ADDITIONS of OUTSTANDING ShareWare for Your PC !!

## PC-DESKTEAM

*The Team YOU need for Your PC !!*

**PC-DESKTEAM** is all you need for your PC to be Your Alarm Clock , Calculator, Typewriter, Phone Book, Calender, Telephone Dialer and your NotePad too !!

All those functions and more can be performed by your PC at any time, even while you are using your PC with other programs !!

Plus PC-DESKTEAM will allow you to control Your Printer and also execute MS DOS Commands while running other programs !!

For example PC-DESKTEAM will allow your PC to be ...

- **ALARM CLOCK** \* Display Time \* Hourly Chime \* Ring Bell \* Display Note \* Auto Program Start !

- **TYPEWRITER** \* Emulate Electric Typewriter \* Character Mode \* Line Mode \* Margin Control \* Tab Control.

- **CALENDAR** \* Display and Print any Month between 1964 & 2050 \* Maintain MULTIPLE Calendars of important Dates and Appointments .

- **NOTE PAD** \* Enter Notes \* Print Notes \* Recall and save Notes from disk

- **CALCULATOR** \* Full Function \* Printing \* Monitor Display Tape!! \* Memory and Percentage \* Read Screen Numbers \* Return Answer.

- **PHONE DIALER** \* Automatic Phone Dialer \* Maintain Multiple Phone Books \* Store Them Within PC Memory.

- **PRINTER CONTROL** \* Enable/Disable PrtScr \* Select Printer Type \* Select Printer Device \* Prints Test Pattern \* Select Special Printer Functions .

It Is a SUPER Program and without any doubts A MUST for Your Library ,



If you have a PC , You should have PC-DESKTEAM !

Catalogue # 1002

APPLICATION

## PC-CALC

### *The Visible Spreadsheet*

PC-CALC is an easy-to-use " Visible Spreadsheet" , written by Jim Button the Author of PC-FILE +.

If you work with NUMBERS , at home , on the job or at school, PC-CALC is for You !.

By using its powerful commands , reports can be produced in minutes that would normally will take Hours to do manually !!

Some of the Applications which PC Owners are using PC-CALC for are .... .

Computing interest and principal on loans , mortgages , savings accounts. - Preparing Payroll Journals , Sales Journals , Accounts Receivable Journals . - Doing income tax computations , computing depreciation , accumulating income and expenses . - Preparing Business Forecasts , Profit and Loss Statements , Ten-years Projections etc.

And then PLAYING " WHAT IF .." to see the IMPACT of changing one or

more numbers !! . - Analyzing Investments , balancing Chequebooks and keeping budgets . -

Preparing Homework assignments for classes In Bookkeeping , Accounting , Math etc.

Spreadsheets created with PC-CALC can be displayed and altered on the Screen , Printed Out , Saved on disk and reloaded for further changes or review .

Spreadsheets can link to other spreadsheets to Extract Data , providing a " 3-Dimensional " capability .

If you are a PC-FILE DataBase User , PC-CALC can REACH into your data and extract data or add up numbers and there is no limit to the number of databases that can be accessed by a single spreadsheet .

It is a good SpreadSheet for Your Personal use and many Business Applications.

Catalogue # 1005

APPLICATION

## PINBALL BONANZA

### *The Ultimate Pinball Arcade*

In Super Colour , Great Graphics and Moving Sounds !!

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**It is a great treat , You will have a real PINBALL BONANZA , Five Pinball Machines to Play with !! You can select from BLACKBOX , CHUTE , DOUBLE , STAR or the ZIPPER , hours of unending Fun !!**

I love the CHUTE , but our Dispatch staff they love the ZIPPER . You can play with Computer only or with two or three friends .

It is an excellent Arcade Game and YES ! it is A MUST for your Library !!

Catalogue # 1006

GAMES

## NEWSBASE

### The Magazines Database

Did you go through that frustrating experience of searching for that article that you have read , in one of your Journals , Magazines or Periodicals one day !! You Need it NOW !! And the only way to find it is to go through ALL that Pile of old Magazines !!

Here is the solution for You !!

**NEWSBASE !! It is a powerful database program Designed especially to help YOU to KEEP track of the contents of each issue of Your Periodicals , Journals , Magazines , News and Newsletters .**

NEWSBASE makes it easy to find a story , editorial or artwork that is related to a Particular Subject .

NEWSBASE allows the user to give a description , headline , synopsis and key words or phrases for the article that is to be stored in a file on data disk . The starting column , page number , volume and number of the periodical and the issue date can also be recorded with the short description .

Afterwards , the search function will look for a particular word or phrase that is entered or list all the articles within a certain time frame in order to find the particular article that is being looked for .

NEWSBASE will allow you to make a Hardcopy of the information to the

printer or to ASCII file . It can work with either a Colour or Monochrome Monitor and it can work with Harddisk as well as One or Two Floppy Disk Drives .

**The Applications for NEWSBASE is almost unlimited for Personal or Business Use , from Professional Accountant Office to a Solicitor . For Advertisers , NEWSBASE can give an overview of all the ads placed by a certain customer in the Periodical over the last few months .**

It is a very good program and highly recommended , we use it already in our Office !!

Catalogue # 1007

APPLICATION

## BONZO WARE

### The Adult Oriented Game

This is an adult-oriented Game ! which means we recommend it for Adults ONLY !!

In Colour and Sound BONZO WARE features TRIVIA GAMES , for one or two players , actually it is a version of STRIP TRIVIA , STRIP POKER and is a Poker Machine like they have in LAS VEGAS !!!.

The questions covered by TRIVIA range from entertainment , sport to science and sexually related questions !!.

Penalties for missing a Question or Losing a hand in either the Strip Games range from Removing an article of Clothing , Telling a Stupid Joke to trying to say a tongue twister !

Although you may play the game to Their Ultimate Outcome !!! , You may also play them without removing the clothing , as it is up to you to do what you want to do !!.

Some of the questions asked by the TRIVIA are of a Sexual Nature , but are handled with surprising decorum and tact !! Hopefully !!!

Catalogue # 1008

GAMES

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## LETTER WRITER

### The Electronic Address Book

Welcome to the World of Office Automation !! LETTER WRITER is an Electronic Address Book and a whole lot more !.

With Your PC and LETTER WRITER you can control all your mailing and write all your Letters to all your correspondents .

LETTER WRITER will print Your Letters , Mailing Labels , List of Addresses and Envelopes !.

You may organize your lists of addresses into as many files as YOU choose .

You can have UP to 2500 addresses per file and there is no limits to the number of files in LETTER WRITER , the only limits come from your Hardware !!

LETTER WRITER comes with its Documentation on the Disk , with all the information you will need to use . However , it is so easy to use that many people say they do not need the Documentation at all !

You can configur LETTER WRITER to run on either a Monochrome or Colour Monitor . If you have Colour Monitor , you can select the colours YOU WANT of any of Sixteen Colours !!

A Great Program to have in Your Library !

Catalogue # 1009

APPLICATION

## INSTANT CALC

### The Pop-Up Spreadsheet

INSTANT CALC is the Ultiimate memory resident Spreadsheet Program you can have .

Let's say you are creating a document using your favourite Word Processor , and you decide YOU NEED to include

a table of values and assorted calculations to prove a point. In the Past you would have to do either of the following ...

- Type the values directly into your Word Processor , trying to keep them in straight columns , then re-enter the numbers into a calculator or pop-up desk utility to perform the calculations and then type all the calculated values into your Word Processor !!

... Or ...

Exit from your Word Processor , load your Spreadsheet Program , create a spreadsheet , save your spreadsheet to a print file , exit from your Spreadsheet Program , reload your Word Processor and merge your spreadsheet into your document !!

NOW with INSTANT CALC , all what you need to do is SIMPLY POP UP the full feature Spreadsheet Program without even leaving your Word Processor.

And after you have created your Spreadsheet , YOU TELL the INSTANT CALC to place it in your document !! that is all !!!

INSTANT CALC is very fast and powerful , yet it is EASY to learn and use .

\* You can Pop Up In the middle of an Application , such as a Word Processor , DataBase etc , and Import or export data between INSTANT CALC and the application .

\* Interactive context sensitive HELP Screen make learning and use INSTANT CALC a SNAP .

\* A Powerful MACRO capability allows you to create your own little " Programs " within the Spreadsheet !!

\* Full predefined functions is provided for you to use in your Computations " Math , Trig , Statistics , Finance , Date , Time and Logical Catagories " .

\* You can ask INSTANT CALC to FIND which cell contains the data you are interested in .



\* You can Completely HIDE a COLUMN from view !!

\* You can EXTRACT parts of a larger Spreadsheet to CREATE SMALLER Spreadsheets !!

\* You can PRINT OUT your Spreadsheet to a Printer or File .

And Much , Much MORE !! INSTANT CALC provides many functions and features found only in a very expensive Spreadsheet , as well as features which CAN NOT be FOUND elsewhere at any price !! A MUST for your LIBRARY !

Catalogue # 1010 APPLICATION

## SUPER BRIDGE

### The Real Contract Bridge

In Super Colour and Sound , Here It Is !! Contract Bridge you can play on Your PC !!.

BRIDGE is a relatively old card game with roots dating back to the seventeenth century . It was originally called WHIST , but was preceeded by games with names like TRIIMPH , TRUMP , RUFF , HONORS and WHISK .

BRIDGE or BRIDGE WHIST was first played at the Portland Club in London in 1894 , introduced by Lord Brougham . It was played for about ten years when it was replaced by a newer version known as AUCTION BRIDGE .

CONTRACT BRIDGE was a spin-off of the French game known as PLAN-FOND . A group of American Players who frequented the Travelers' Club in Paris combined WHIST and PLAN-

FOND and came up with the basics of the game played TODAY . American Yachtsman and card enthusiast Harold S. Vanderbilt , in the mid-nineteen twenties brought out his own set of rules for play which were subsequently endorsed as the Official Rules for BRIDGE whenever it was played .

This version of Contract Bridge is played by two teams , the WE team and THEY team . It comes with Documentation on the disk , explaining HOW to play BRIDGE If you are new to the GAME !! You will love it !!

Catalogue # 1011

GAMES

## CANASTA CARDS

### The Arcade Cards Game

CANASTA is a Card Game which was developed in South America and imported to the United States in 1948 . It was Known originally as ARGENTINE RUMMY and supplanted both GIN RUMMY and BRIDGE as the most popular Card Game in the U.S. of A.

This computer version comes in COLOUR and SOUND and It is a great Arcade Card Game to have !!

Catalogue # 1012

GAMES

## SUPER POKER and HEARTS

### The Two Popular Games

We love it !! Two of the MOST POPULAR Cards Games in Colour and Sound , gave us HOURS of FUN !!

- POKER .. Known as " The Great American Game " , actually originated in the United States ! It became popular among the Cajuns and French of New Orleans in the 1800's . at that time they called the card game " POGUE " . likely from the French word " POCHER " meaning "to bluff" . As the game worked its way north by way of Mississippi Steam-

\$14.25 each, postage and packing included!!



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boats the name came to be known as "POKER".

- HEARTS .. Most card games are played for a high score , but the object in HEARTS is the least score !!!

The game has many predecessors , but all have become obsolete by the modern game which became popular in the 1920's .

Good collection of Arcade Card Games , it A MUST as a part of my Games Library !

Catalogue # 1013  
GAMES

## NAME-PAL

### The Address Book

NAME-PAL is a complete automatic address book . It will keep Your lists of Names , Addresses , Phone Numbers and related comments on Your PC !.

Then PRINT them in a POCKET-SIZE BOOK that you can USE ANYWHERE !!! and You can code your data to keep track of Club Members , Birthdays , Babysitters or any other grouping that is important to You !.

NAME-PAL performs other handy tasks , like Printing Mailing Labels , Rolodex Card Files and Full-Page Rosters .

Best of all , NAME-PAL is quite EASY to use . It is completely Menu-Driven , so choices are made from a list of Options , which are described ON-SCREEN in Help Messages if you want assistance . It is a real joy to use !

Catalogue # 1014 APPLICATION

## POWER-MENU

## The Super HighWay Menu

Do You hate , always , going back to MSDOS and type The name of the Application Program You want to use "if it is Your Word Processor , Spreadsheet or even a Game ! " ?? The solution is POWER-MENU .

Now , You will be able to run your Application or Game by Pressing ONE KEY only !!. POWER-MENU is an operating environment for Your PC / which act as a



Super HighWay , providing EASY ACCESS to ANY Application on Your PC .

POWER-MENU is particularly suited for END-USERS who would rather not worry about sub-directories , command line parameters and command names . For instance , YOU can set up POWER-MENU to RUN a Word Processor when the W key is hit ! and when You exit from The Word Processor , You are back in the main POWER-MENU again . You never need to interact with the Disk Operating System !

User-Friendly POWER-MENU uses the familiar SIDEKICK like MENU structure and includes On-Line Help at the touch of a key .

You can select what ever colours you want to see POWER-MENU in !.

It has PASSWORD protection , Sub-Menus , Screen Save feature , Instant

Access to DOS , and even DBASE III Compatibility ! It is A MUST for your Library !

Catalogue # 1015

APPLICATION

## DISK CAT

### The Disk File Catalogue

If YOU want to have Your OWN Library of Software ?! Then You MUST have DISK CAT !!

DISK CAT is the Ultimate Disk File Catalogue Program . You will be able to control all Your Collection of Programs and KEEP track of all disk FILES . No more sticking disk after disk into a drive to see if the file you need is on it !!.

DISK CAT reads 8 or 9 sectorized , Single or Double Sided disks . It PRINTS a file listing to keep with each Disk , Displays names of all disks in Your Collection , along with a number of sectors and sides and free space remaining on each disk .

You will be able to add file category and description , rename files and disks , delete files , VIEW file contents , LOCATE FILE or DISK in Your Collection . It is A MUST for Your Library ! Highly Recommended !

Catalogue # 1016 APPLICATION

## CHECKS and BUDGETS

### The Home Budget Program

CHECKS and BUDGETS is a Home Budget Tracking Program . It is an EASY to use , Windowed , Menu Driven , Cheque Book and Budgeting System .

It has SUPER Features like ...

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- \* Built in HELP Menu System .
- \* Up to 180 accounts , 120 for expenses and 60 for Income .
- \* Up to 65,535 Cheque Register entries , limited by disk space avail .
- \* Financial Report Generation ,
- \* Automatic Balancing .

It has even a section for Financial and Loan Calculations !.

**CHECKS and BUDGETS** is fairly simple to learn . It is a GOOD Personal or Small Business Accounting System .

Catalogue # 1017

APPLICATION

### EXTENDED DOS

*Will Give You the Features , Which MSDOS Doesn't Have !*

**EXTENDED DOS** is the Latest offering from ButtonWARE™ Authors of PC-File+™ . It is a SUPERB Program , provides very USEFUL extensions of the most commonly used DOS commands as well as adding a couple of features which DOS doesn't have !! .

*EXTENDED DOS can be as SIMPLE or as complex as you need . Experienced Users will want to type the individual commands , while the NOVICE USER can SIMPLY type XD and be presented with a Menu of ALL the Commands .*

In the Menu Mode the EXTENDED DOS will walk you through each step of the command you CHOOSE . It is well suited to ALL SKILL LEVELS from Novice to Expert .

The Documentation supplied with EXTENDED DOS is excellent , providing EASY to understand Instructions for getting started . It is without any doubts A MUST for any PC Owner !

Catalogue # 1018

APPLICATION

### HOMEBASE #1

#### *The Complete DeskTop Organizer*

**HOMEBASE** is a Complete DeskTop Organizer . It has at least ONE UP on SIDEKICK !!.

*Indeed , PC MAGAZINE went so far as to say : " One way to look at it is to say the Borland's product is a first-generation organizer , while HOMEBASE is SECOND or THIRD GENERATION . It delivers the most BANG for the BUCK among DeskTop Organizers " .*



You will have all what you need in **HOMEBASE** from Editor/Word Processor , Calendar/Appointment Organizer Book , Terminal Communications Program , Liner Database Services , Cut and Paste Operations Program to Calculator and More !!

*\* CALCULATOR .. is a SCIENTIFIC-TYPE Calculator has 26 MEMORY Variables , a " TAPE " that can be saved or pasted into other work !*

*\* CALENDAR .. In this Special Version of HOMEBASE , TWO Calendars can be maintained simultaneously so that an Office Secretary " for example " can KEEP separate calendars for TWO people in her operation .*

A QUERY facility enables you to respond to such questions as : " When

did Joe and Mary have lunch together ? " or " Give me a list of any time anyone in the Office had a meeting with Customer Jones " !! or " Total my expenses for the day and move them over to the Word Processor so that I can write an excuse for the boss " !!!

The DAILY Calendar VIEW divides the screen into TWO sections ;

*the APPOINTMENTS for THE DAY , and TO-DO LIST for Today Appointments can be annotated to any length , and the TO-DO LIST can ROLL forward to tomorrow , or any subsequent day , those items that you just didn't quite finish today !!*

A WEEKLY VIEW shows a week's worth of days , each with a column of HIGHLIGHTED HOURS representing Appointments .

In Short , It is a SUPERB TIME MANAGEMENT Program !

\* DATABASE Services are very POWERFUL , enabling you to maintain Rolodex Type Files , Index Card Records , Message Records or any form YOU wish to create .

\* TERMINAL SERVICES .. Is a SMART Terminal Package that allows uploading and downloading ( ASCII or XMODEM ) and fully Automatic Operation . It also functions as an Autodialer for Voice Communications through the NameAddress DATABASE

*In the AUTO-ANSWER Mode , HOMEBASE Terminal Emulator can function entirely in the background while you are working on something else !!!*

For example , suppose you are working in 1-2-3 , when a call comes into the computer , Your Partner with a file to upload . HOMEBASE will answer the call and notify you ( in the 1-2-3 screen ) that it has done so . Your Partner can upload his file while you stay in 1-2-3 or you can duck out of the Spreadsheet , communicate with the Caller and the return to the Spreadsheet without dropping a character !!!

\$14.25 each , postage and packing included!!



Available from:

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TEL: (075) 39 6177 or order on VIATEL '64213 #



There are more and more other SUPER features in HOMEBASE .

This is Part #1 of HOMEBASE , You need to have Part # 2 too ( Catalogue # 1020 ), to be able to use HOMEBASE .

It is an Excellent Program and without any doubts A MUST for any one who owns a PC !!

Catalogue # 1019

APPLICATION

## HOMEBASE #2

### The Complete DeskTop Organizer

This is a Part #2 of HOMEBASE . You have to get Part #1 and Part #2 to be able to use HOMEBASE .

Catalogue # 1020

APPLICATION

## GOAL SEEKER

### The Must Have Program for Lotus Users

GOALSEEKER is used in conjunction with Your Spreadsheet ( LOTUS 1-2-3 ..etc.. ) to automatically find solutions with a " REVERSE " or " BACKWARD " search method , Known as " Goal Seeking " .

Goal Seeking is the ability to ACHIEVE certain targeted Values in a Spreadsheet by VARYING the associated Data .

GOAL SEEKER run in 80 column mode with either a Monochrome or Colour Graphics Monitor in conjunction with your Spreadsheet Software.

Although not needed , GOAL SEEKER will utilize an 8087 or 80287 Math Co-processor Chip if installed .

On the Disk You will get FOUR different Versions of GOAL SEEKER ( one for LOTUS , MULTIPLEX , SUPERCALC4 and VP PLANNER ) . YOU select the correct one for Your Spreadsheet Program .

GOAL SEEKER supports SUPERCALC4 , MULTIPLEX , VP PLANNER as well as LOTUS 1-2-3 .

All what you need to do is to Copy the correct version of GOAL SEEKER onto Your Spreadsheet System disk or the Spreadsheet subdirectory of your Hard Disk .

GOAL SEEKER is A MUST if you use a Spreadsheet !!

Catalogue # 1021

APPLICATION

## INSTANT CALENDAR

### The Wall-Size Calendar Program

With INSTANT CALENDAR You will be able to generate a WALL-SIZE CALENDAR for any Specific Month or for an ENTIRE YEAR (from 1600 - 2200) .

The Calendar can be PREVIEWED on the SCREEN , PRINTED or transferred to a text file so that you may CUSTOMIZE it using your favourite Editor or Word Processor .

If You want to Print YOUR OWN CALENDARS for yourself or to give to your friends , INSTANT CALENDAR is the one for you !!

Catalogue # 1022

APPLICATION

## PC-ENCRYPTION

### The Vernam Encryption Program

PC- ENCRYPTION and DECRYPTION will demonstrate the usage of Vernam Encryption System on PC !! .

It has two main functions : Demonstration of the Vernam encryption and decryption process using test character strings and the encryption and decryption of both sequential and random access files .

Back in 1917 , Gilbert S . Vernam developed an encryption process for messages punched in paper tape using Baudot or five channel teletype code . He used the electro-mechanical equivalent of a logical exclusive OR operation ( XOR ) on each character code in a message tape and a corresponding character code in a key tape to produce a third tape with the encrypt message .

The Program uses essentially the same process even to the extent of using a five bit pattern to encrypt and decrypt data

Catalogue # 1023

APPLICATION

## LIBBITS and VOLDRONS

### The Arcade Video Game

You are in charge of security on the Spaceship VAN-FOOTZ , Commander Azpack has ordered you to guard the area between the LABBIT Cage and Ship Storage for two reasons ...

First .. The LABBIT Cage is in need of repairs and does a poor job of containing them , when they escape , they make their way to stored food through the Vents in the Area Walls !!

Second .. The deadly VOLDRONS utilize a version of Stealth to infiltrate the ship un-noticed until they disengage . VOLDRONS are - as we know - the deadliest from of WARMONGERS , and they uncloak in plain view just to aggravate their victims . These VOLDRONS are out to poison all of SHIP STORAGE .

\$14.25 each, postage and packing included!!



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You may guard one of six levels on board. You are IN CHARGE , as Chief Security. LABBITS and VOLDRONS is a very good Video Arcade Game . You must have in Your Library !!

Catalogue # 1024

GAMES

## DOTS MANIA

### The Dots Lovers Games

**DOTS** Is a complex version of the Game played by School Kids over at least the last Half-Century .

It is difficult to pin down just when the Game originated , but it remains a popular lunch break pastime in many schools across the country .

When the Game is played on paper , ROWS of dots are drawn on a blank sheet to form ten to twenty dots a square

The first player draws a line between any two dots , then the second player does the same . Play continues in turn as each tries to draw lines that will KEEP the OTHER from completing all sides of a Box .

If a player succeeds in completing a BOX , HE marks it with his initials to claim it and then takes another turn .

When ALL of the dots have been used and no more lines can be drawn play ends . EACH Player then counts the number of BOXES claimed . The player with the highest score wins !!

**DOTS MANIA** is played by the same rules , but the grid of dots is substantially larger and the Computer automatically MARKS each box claimed and tallies the scores as play proceeds .

Because of the size of the GRID it becomes possible to develop EXTREMELY Complex STRATEGIES to claim boxes later on in the Game !! , which can take up to 45 Minutes to play !!

It Superb STRATEGY GAME !! You will enjoy Hours and Hours of Fun !! It is a MUST HAVE Game !!

Catalogue # 1025

GAMES

\$14.25 each, postage and packing included!!

## L.Q. PRINTER UTILITY

### The Ultimate Printer Utility

L.Q. is an Impressive Printer Utility which allows you to use your Inexpensive Dot Matrix Printer to PRINT a variety of FONTS in near letter quality

L.Q. may be loaded as a Memory Resident Program to filter the data from Your Word Processor or other Programs !! , or it may be used as stand alone to process individual files . The Memory Resident Mode is the most convenient way to use L.Q. !!

L.Q. comes with a large assortment of predefined FONTS Including COURIER , GREEK , HELVETICA , ROMAN and many others Including ITALICS for each Font !! .

A Character Editor is also provided to ALLOW YOU to MODIFY or CREATE Your Own Fonts Sets . Each Font character is 10 by 24 dots so there is enough resolution to make some pretty decent Fonts - I played around with OLD ENGLISH !! .

Be prepared to do some waiting though ! . Since L.Q. uses graphics mode to print the Fonts , printing goes a whole lot slower than regular text printing - That is the price for high quality - .

L.Q. provide some aid by providing a print spooler which is optimized for graphics data .

L.Q. has a bonus too for you !

It comes with a Program named BIGPRINT which allows you to print out large letter BANNERS on Your Printer ( using any of the same fonts that L.Q. uses !! ).

As an extra YOU get a scheduling Calendar Program which You can put in your autoexec file to remind you when upcoming appointments are near !!!

Without any doubt , I will get a copy for my own library !! It is a MUST !!

Catalogue # 1026

APPLICATIONS

## FOLK SPELLER

### The Spelling Checker

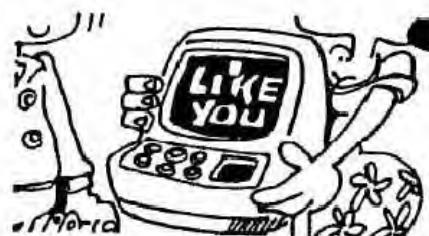
Welcome to FOLKSPELLER , a text file Spelling Checker Program that will allow you to correct Misspelled Words as they are found in the file . If you use Your Computer for writing letters , articles , books or documentation and have as much trouble with spelling and Fat Finger errors in typing as I do ! , you will find FOLKSPELLER a Handy Tool to have ! .

FOLKSPELLER stores the correctly spelled words in a dictionary , and looks up Each Word in a Document to verify the spelling .

It has a few more functions that make it an EXCELLENT TOOL for a Writer .

It will display HOW MANY WORDS were checked in a document and also add Your OWN WORDS to the dictionary or use special word list . That is what Fred Guymon the Author of FOLKSPELLER said and I found it accurate .

The FOLKSPELLER Dictionaries are capable of storing 100,000 + Words



on a Hard Disk or 40,000 + on a Floppy Disk . Since FOLKSPELLER uses data compaction and suffix extraction , the actual number of Words stored on either medium is not able to be determined .

Theoretically , the dictionary can STORE 1,800,000 different words or 370,000 on diskette !!!

Simply , FOLKSPELLER is A MUST for a Writer !!

Catalogue # 1028

APPLICATIONS



Available from:

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# THE OH! ZONE



Correspondence for  
THE OH ZONE should  
be addressed to

BRUCE,  
THE OH ZONE,  
PO Box 1742,  
Southport, Q.  
4215.

Dear Bruce,

I am a subscriber and a buyer of the Golddisks. However, I have been disappointed and frustrated to the hair pulling stage by the problems with the Golddisks.

Re: Disk 4

\* "Adder" still has the sound on at the end- how do you get rid of it?

\* "Backgammon"- How do you play it? Neither the Softgold Oct 87, where the program was put in, OR the disk has instructions.

In fact I feel all games should have instructions. The disk should be understood without having to read a book!

It is a medium which should stand alone to be understood. I think a person should be able to put a disk in and follow instructions more or less from there.

\* "MSketch" does not work. If you type RUN MSKETCH, the screen shows echo off then a series of black and white colour screen changes.

\* "Pfile" does not work. \* "Trek 88" has different angles from Deon's quote in Oct 87 eg. for navigation # is right, #8 is up etc.

I feel the game instructions are too few to be understandable and having to refer to an Oct 87 Softgold is not really acceptable. It may be lost in the future!!

Golddisk 3.

This disk has some good programs but:

\* "Air raid" after running it and typing system gets into the loop with the alternate black/white screen. Arrows do not work.

\* "Maskmate" does not work. I realize it is for a mouse, but how can it be changed for a joystick.

\* "Na-Database"-- shows up syntax error in 55 in print routine for postage.

I have been looking forward to Softgolds in the hope that some errors would have been rectified. I hope you can shed light on some of the above problems.

Could you please explain how to make a "master" Golddisk say with all games on it so that children could easily use it. A menu or something similar might be needed.

Best wishes with your new job.

Mrs Marg. Ruckett

Dear Bruce,

I am having some troubles with the following GOLDDISK programs.

GOLDDISK 1

"Hi-Res"- There is nothing happening with line 20 ie OUT 985,0.

"Input.Com" also does not work.

GOLDDISK 2

"Intro Basic"- I keep getting an illegal function in line 240 which when fixed goes to system in line 250.

Could you please offer some advice on how to fix these.

Mr. Shreeve

Dear Marg,

Thank you for your kind wishes and the best to you also.

Well it is good to see someone is awake out there. All these little hassles are actually tests to see if anyone really uses the GOLDDISKS.

With the help of my learned colleague Daryl we think we might have sorted out some of the "BUGS".

Starting with the "Adder" program, the sound cannot be fixed unless you have a Turbo Pascal Compiler. If you do have a Turbo Compiler Version 3, add the procedure: NOSOUND to the last line of the program, after END game; and before END.

As for "Backgammon", after you have loaded it in, run it and enter yours and your opponents initials to let the game begin. However, because it is such a complicated game to explain, it would be easier to refer to a games book from your local library for rules and how to play manual.

Both "Msketch" and "Pfile" were supplied as Pascal source programs, which means they must be compiled to a com. file before they can be run. If you don't have a com. file for all of the \*.pas programs, return them to us to have them compiled.

To fix "Trek88", the cos and sin commands in line 720 must be swapped so as to become: cx=sin(constant\*course):cy=-cos. ....etc....etc....etc....

As for the program "Alrraud", the following changes must be made: Line 210 must now become Q\$= INKEY\$: IF LEN(Q\$)>2 THEN 220

Line 215 must be added as 215 Q\$= RIGHT\$(Q\$,1)

Line 230 must be changed to IF Q\$= CHR\$(75) THEN LOCATE X,Y: PRINT" ": Y=Y-3: SOUND 4500,.5

Line 240 also must be changed to IF Q\$= CHR\$(77) THEN LOCATE X,Y: PRINT" ": Y=Y+3: SOUND 4500,.3

In line 270, change the Y value to Y<6

And finally, in line 280, the Y value must again be changed to Y>33

Maskmate is too complicated a conversion for this column so I will work on it and publish the details later.

The same applies for the NA database. I will fix it up and print the result next month.

Your comments on the inclusion of instructions in the programs are quite valid. You must be aware though that most

of the programs are written by other readers.

When we receive the submissions in the past we have tried to keep it as original as possible. This was done to allow the readers to expand their skills in programming and also writing.

It appears that it does present a problem if as you say the magazine is misplaced.

I will endeavour to incorporate as much information about a program's operation as is possible.

Please consider that some of the submissions are received with little or no instructions and I am left in the same boat as yourself.

The situation will improve but please accept that some of the programs as they are meant to be, learning experiences.

(I don't know how to play backgammon anyway)

We are always here to help with any problems.

The compilation of programs onto one disk with a menu is virtually what a GOLDDISK is.

It is a great idea for an article and I'm a bit pushed this month so I'll try to get something together soon to explain how it can be done.

If there is a lot of errors in your GOLDDISK please return it and I will send an amended copy.

Thank you very much for writing and I hope I have answered some of your questions.

Please write if there is still any hassles.

Bruce and Daryl

Dear Mr. Shreeve,

Glad to talk to you the other day. I sometimes wonder who the readers are so it is good to hear from you.

It is a fact of life at all levels of computer programming that bugs appear in the system.

It is also the case that many programs are very hard to follow and not very well documented.

A person picking up a book written in Japanese will have a hard time reading it until they learn and are fluent in the language.

This is the case with computer programs as they are simply interpreters from our language to the micro-processor's language.

We must all try to remember to document our programs well so as to avoid misunderstandings later.

The "HIRESCOL" program is one such example. Calls are made to undocumented locations but no explanation is given in the text of what they do.

continued on p50

# REVIEW:

## THE TANDY 1000HX

'...also standard is an RGB monitor output with a monochrome monitor output - not many computers have these as standard either, you normally find them as the 'hidden extras'

By Deon George

Well, I was just "MACEing" my hard drive (which was going to take about 50 minutes) when I decided to have a look at this new Tandy 1000 HX. (the son of the EX!)

Before I even looked at the computer I began comparing it to the Tandy 1000 TX, which in my opinion, was a good computer.

The TX is the "latest" on the computer market, since it has 640K standard, 3 1/2" disk drives, and has a 80286 with two speeds. Like all Tandy computers, they come standard with the RGB and monochrome monitor output, parallel printer port, and has guaranteed service by Tandy for the computer's life.

I expected the HX to be like what the EX was to the SX, a portable version of a new-updated computer.

Unfortunately, I was shocked by my findings!

I remember Graham telling me that it had MS-DOS in the ROM and there was no need to take a boot diskette. Sure enough, I thought that was a good idea.

The little machine only had one disk drive, but it had the space for another 3 1/2" to be mounted internally. This had the advantage over the EX which had only one 5 1/4" drive hidden around the corner. On the EX there was no space for an extra internal drive.

Just to fool the machine, I went to get a directory off a disk in drive B (which would be

the same as drive A since there is only one drive.). Bad move! The computer went off into its own world, looking for drive B.

Obviously it had not been configured to only have one drive, and I couldn't find any dip switches near by to fix this problem.

When I turned it on, the first thing I wanted to see was what its Norton rating was.

Err, I got a 0.9 Norton rating, and I nearly hit the floor with shock! Looking at the information on the processor, I saw that it was a 8088 and wondered whether I was given an EX by mistake.

I had just traded in my only Tandy 1000 which also had a Norton's rating of 0.9 for a 286 turbo with a rating of 11.7 quite a difference!

And to top it off, I discovered it only had 256K on board.

How could they call this the "New Computer"? Especially considering the 1400 is smaller and has 728K memory and twice the speed.

Another disappointing factor was the date and time loss when the computer is turned off. To many of you this may seem a little frivolous, but if you are used to a computer "knowing" the time when you turn it on, it becomes a hassle to enter the time every time you have to boot.

When you build up the courage to add more memory, modem or something new to your computer, you will have to buy a Tandy product (since it can only take 5" boards).

The computer, has an external drive adaptor - very handy, if you want to put on a 5 1/4" disk drive.

However there are some nice things about the T1000 HX. It has DOS in Rom - this means that you don't need a DOS disk - an excellent feature.

It has a well designed layout, ensuring that small hands will have no trouble operating it.

The T1000 HX is expandable and would make an excellent basis for a semi-portable computer.

There is also a parallel printer port, (not all computers you buy have those standard!)

Also standard is an RGB Monitor output with a monochrome monitor output - not many computers have those standard either, you normally find them as the "hidden" extras.

Not much more to say really, the computer is an upgrade of the former EX which is an 8088 computer with a speed of 4.7 Mhz and 256K.

As a first computer, or as a computer for children, this computer rates highly. It is good value for money and works straight out of the box - unlike many Taiwanese clones.

# S·P·I·R·O

by Leigh Dawes

Spiro follows similar principles to the popular Spiro Graph. There is a help screen.

The program is straight forward with plenty of comments to help the PASCAL beginner.

The program originally had a DMP105 printer driver which would dump the finished pattern.

I left this as the program is long enough as it is. For those that are interested, phone (051)

745552 for details on obtaining this driver.

Basically, the user inputs four parameters (inside and outside wheel size and inside and outside wheel step). A plot or draw mode is also selected.

Depending on the value of the parameters entered, patterns emerge onto the screen.

It is great to watch the patterns being drawn.

Particular patterns have a type of hypnotic effect on the user.

I hope T1000 and IBM compatible users have fun learning with these two programs.

Invoke the program by typing "SPIRO" then press <enter>.

The Listing:

```
($U-, R-, C-)
program Spiro (Input, Output);
{ Displays patterns similar to the well known spiro graph
}
var Ch : Char;           { Store key press }
  Size1,                 { Size of outside wheel }
  Size2,                 { Size of inside wheel }
  Step1,                 { Stepping rate of outside wheel }
  Step2,                 { Stepping rate of inside wheel }
  Mode,                  { 2=plot other wise draw }
  i1,                     { Degrees of step 1 }
  i2,                     { Degrees of step 2 }
  x,                      { Temporary x coordinate }
  y,                      { Temporary y coordinate }
  x1,                     { First x coordinate }
  y1,                     { First y coordinate }
  x2,                     { Second x coordinate }
  y2 : Integer;          { Second y coordinate }
  ResetFrog : Boolean;   { True will reset parameter display }

procedure Polar (Radius, Degrees : Integer;
                 Ratio : Real;
                 var x, y : Integer);
{ Returns x and y coordinates using polar coordinates.
  Radius = distance from CentX,CentY to point
  Ratio = size of y to x
  x,y = coordinates returned
}
begin
  { calculate x & y coordinates }
  y := Round (Sin (Degrees * (Pi/180)) * Radius * Ratio);
  x := Round (Cos (Degrees * (Pi/180)) * Radius);
end; {Polar}

procedure Help;
{ Display help screen
}
var Ch : Char;
begin
  ClrScr;
  GotoXY (34,5); Write ('HELP SCREEN');
  GotoXY (34,6); Write ('=====');
  GotoXY (2,10);
  Writeln ('Enter the inside and outside wheel steps and the inside and outsi
```

```

de wheel');
    Writeln ('sizes.');
    Writeln ('Then enter the type of mode to draw in.');
    Writeln (' If the mode = 1 then the program draws a continual line.');
    Writeln (' If the mode is anything else then the program will plot dots ar-
ound the');
    Writeln (' screen.');
    Writeln;
    Writeln;
    Writeln ('Try entering different values for different patterns to be drawn.
');
    Writeln;
    Writeln ('For those who own a Tandy DMP105 printer, a printer driver is ava-
ilable');
    Writeln ('by phoning Leigh on (051) 745552.');
    Writeln;
    Write ('           PRESS ANY KEY TO CONTINUE : ');
    Read (Kbd, Ch);
    ClrScr;
end; {Help}

```

```

function GetNum : Integer;
{ Get number in a string then convert to integer if legal.
  If "?" is entered function will call help screen.
}
var Line      : string [80];   { Temporary line }
  Num,          { Value of converted Line }
  Error : Integer;        { Error=0 no error otherwise error occurred }
begin
  Readln (Line);           { Get String from keyboard }
  Num := 0;
  if Line <> '?' then
    begin
      { convert string to number }
      Line := Copy (Line, 1, 3);
      Val (Line, Num, Error);
      ResetProg := False;
    end
  else
    begin
      { display help screen }
      Help;
      ResetProg := True;
    end; {if}
  if Error = 0 then
    GetNum := Num           { no error in conversion }
  else
    GetNum := 0;             { illegal value entered }
end; {GetNum}

```

```

procedure GetParam;
var Num : Integer;
begin
  { Display parameter screen }
  Writeln ('                               PARAMETER ENTRY SCREEN');
  Writeln;
  Writeln ('Press <ENTER> to preserve number in square brackets or');
  Writeln ('enter your own number then press <ENTER>');
  Writeln ('Entering a "?" will bring up the help screen.');
  Writeln;

  { Get parameters }
  Write ('Enter inside wheel step (1-360) [,Step2,] : ');
  Num := GetNum;
  if (Num > 0) and (Num <= 360) then
    Step2 := Num
  else if ResetProg then Exit;

```

```

Write ('Enter outside wheel step (1-360) [',Step1,'] : ');
Num := GetNum;
if (Num > 0) and (Num <= 360) then
  Step1 := Num
else if ResetProg then Exit;

{ 1- 100 for best effects on size }
Write ('Enter inside wheel size (1-100) [',Size2,'] : ');
Num := GetNum;
if (Num > 0) and (Num <= 160) then
  Size2 := Num
else if ResetProg then Exit;

{ 1- 100 for best effects on size }
Write ('Enter outside wheel size (1-100) [',Size1,'] : ');
Num := GetNum;
if (Num > 0) and (Num <= 160) then
  Size1 := Num
else if ResetProg then Exit;

Write ('Enter mode (1=draw, 2=plot) [',Mode,'] : ');
Num := GetNum;
if Num = 2 then
  Mode := 2
else
  Mode := 1;
if ResetProg then Exit;

Writeln;
Writeln ('While drawing pressing "Q" will abort the program.');
Writeln ('Pressing any other key will bring you this screen.');
Writeln;
Write ('Press any key to continue : ');
Read (Kbd, Ch);
Writeln (Ch);
end; {GetParam}

```

```

procedure Initialize;
begin
  HiRes;
  Step1 := 4;
  Step2 := 183;
  Size1 := 100;
  Size2 := 100;
  Mode := 1;
  ResetProg := True;
end; {Initialize}

begin
  Initialize;                                { Reset variables }

  repeat
    repeat
      if ResetProg then
        GetParam;                            { Get parameters for pattern }

      until not ResetProg;
      HiRes;
      i1 := 0;      i2 := 0;
      x2 := -1;    y2 := -1;
      repeat
        Polar (Size1,i1,0.5,x,y);          { Call for x and y coord }

        x := x + 320;   y := Abs (y - 100); { relative to the centre of continued
                                                screen }                                overleaf
      end;
    end;
  end;

```

This program gives a demonstration on the use of PASCAL. It is heavily commented for the PASCAL beginner.

It reads a file specified by a filename and reports back the number of words, lines and pages in the text file.

It is only good for textfiles. For files which originate from

the likes of WordStar type editors, lines and words are still counted.

If, for example, the file uses the ".pa" as a page break, this program will not count pages. However, it counts pages broken up by the ASCII 12 character.

The program can be invoked by

specifying the filename on the command line thus :

WRDCOUNT TEST.TXT TEST.TXT is checked out.

WRDCOUNT TEST As above but TXT is assumed.

WRDCOUNT Asks for filename while running.

## The Listing:

```
{$U-, R-, C-}

{ Author      : Leigh Dawes
  Phone       : (051) 745552
  Created     : 11/3/88
}
```

```
{
NOTE : SOME PROCEDURES CONTAIN MORE THAN NEEDED.
EG. THERE ARE MORE ERROR MESSAGES THAN NEEDED IN 'DISPLAYERROR'
THIS IS SO PASCAL BEGINNERS CAN SEE WHAT CAN BE DONE WITH
THE PASCAL LANGUAGE.
```

```
program Word Count (Input, Output, Infile);

{ Reads a file and displays the number of words, lines and pages.
}

const FormFeed = 12;
      CR      = 13;
```

## continued from previous page

```
Polar (Size2, 12, 0.5, x1, y1);
x1 := x1 + x;
y1 := Abs (y1 - y);
if x2 = -1 then
begin
  x2 := x1; y2 := y1;
end; {if}
if Mode = 2 then
  Plot (x1,y1,1)
else
  Draw (x2,y2,x1,y1,1);
x2 := x1; y2 := y1;
i1 := (i1 + Step1) mod 360;
i2 := (i2 + Step2) mod 360;
until KeyPressed;
Read (Kbd, Ch);

{ Original printer driver was placed here }
{ If Uppercase (Ch) = 'P' then
  GraphDump;
}

ResetProg := True;
Hires;
until Uppercase (Ch) = 'Q';
ClrScr;
Writeln ('End Of Program SPIRO');
end.
```

{ to display the getparam screen }
{ Clear the hi-res screen }
{ Stop if 'Q' or 'q' is pressed }

```

var Infile : Text;           { Global file variable      }
WordCount,                  { Global counter of words   }
LineCount,                  { Global counter of lines   }
PageCount : Integer;        { Global counter of pages   }
Error : Integer;            { Store I/O result here    }
Valid : Boolean;            { True if command line valid }

procedure DisplayUsage;
{ Displays text on usage of program
}
begin
  Writeln;
  Writeln ('USAGE : WRDCOUNT [[filename].extension] <enter>');
  Writeln ('[] are optional.');
  Writeln ('If extension is omitted then .TXT is assumed.');
  Writeln ('If filename is omitted then filename is obtained in RUM.');
  Writeln;
end; {DisplayUsage}

procedure DisplayError (Error : Integer);
{ Displays the error message according to the error code.
}
begin
  Writeln;
  Write ('runtime error ', Error, ' ');
  case Error of
    1 : Writeln ('File does not exist.');
    2 : Writeln ('File not open for input.');
    (*) 3 : Writeln ('File not open for output.');
    4 : Writeln ('File not open.');
    (*) 16 : Writeln ('Error in numeric format.');
    (*) 32 : Writeln ('Operation not allowed on a logical device.');
    (*) 33 : Writeln ('Not allowed in direct mode.');
    34 : Writeln ('Standard I/O files not allowed.');
    (*) 154 : Writeln ('Record length mismatch.');
    (*) 155 : Writeln ('Seek beyond end-of-file.');
    163 : Writeln ('Unexpected end-of-file.');
    (*) 240 : Writeln ('Disk write error.');
    (*) 241 : Writeln ('Directory is full.');
    (*) 242 : Writeln ('File size overflow.');
    255 : Writeln ('File disappeared.');
  end; {case}
  { Lines marked with * can probably be excluded. }
end; {DisplayError}

procedure Inc (var Num : Integer);
{ returns Num after incrementation }

begin
  Num := Num + 1;
end; {Inc}

procedure Initialize;
{ Initialize counters and open input file
}

var Name : string [12];    { filename of 12 characters}
begin
  { Initialize some variables }

```

```

Name := '';
WordCount := 0;
LineCount := 0;
PageCount := 0;

{ Get file's name }
if ParamCount = 0 then
begin
  Writeln;
  Writeln ('The program will display a wordcount.');
  Write ('Enter name of input file : ');
  Readln (Name);
end
else
begin
  Name := ParamStr (1); { transfer command line parameter to Name }
end; {if}
if Pos ('.', Name) = 0 then
  Name := Name + '.TXT'; { add extension if not present }

{ Open file for input }
Assign (Infile, Name);
{$I-}
Reset (Infile); { open file for input }
{$I+}
Error := Ioresult;
if Error > 0 then
  DisplayError (Error); { display message if error }
else
  Writeln (Name, ' is opened for input.');
end; {Initialize}

```

```

function GetChar (var Infile : Text) : Char;
var Ch : Char;
begin
  {$I-}
  Read (Infile, Ch); { read character from file }
  {$I+}
  Error := Ioresult;
  if Error > 0 then
    DisplayError (Error); { display message if error }
  GetChar := Ch; { return character read from file }
end; {GetChar}

```

```

procedure Process;
{ Read and process input file. Accumulate totals for words,
  lines and pages.
}

```

```

var Ch : Char;
  Letter, Count : Boolean;
begin
  { Display user quit option }
  Writeln;
  Writeln ('Press any key to abort program');
  Writeln ('This will display current counts.');
  Writeln;

  Count := True;

  { Process while we have data to input }
  while not Eof (Infile) and not Keypressed do
  begin
    Ch := GetChar (Infile); { read character from file }
    Letter := Upcase (Ch) in ['A'..'Z'];

    { increment WordCount if word encountered.

```

```

Here, a word is the first letter encountered after a
non-letter
if Letter and Count then
begin
  Inc (WordCount);
  Count := False;
end
else if not Letter then
  Count := True;

{ increment LineCount if end-of-line encountered }
if Eoln (Infile) then
begin
  Inc (LineCount);
  Write ('P=', PageCount, ' L=', LineCount, ' W=', WordCount, Chr(CR));
end; {if}

{ increment PageCount if new page or end-of-file }
if (Ch = Chr (FormFeed)) or Eof (Infile) then
  Inc (PageCount);

end; {while}
if Keypressed then
  Read (Kbd, Ch);           { read key just pressed }
end; {Process}

procedure Final;
begin
  {$I-}
  Close (Infile);           { close input file }
  {$I+}
  Error := Ioresult;
  if Error > 0 then
    DisplayError (Error);   { display message if error occurred }

{ Display totals }
Writeln ('Words counted : ', WordCount);
Writeln ('Lines counted : ', LineCount);
Writeln ('Pages counted : ', PageCount);
end; {Final}

begin
  Valid := not (ParamCount > 1);
  if ParamCount = 1 then
    if (ParamStr(1) = '?') or
      (ParamStr(1) = 'help') or
      (ParamStr(1) = 'HELP') then
      Valid := False;
  if Valid then
    begin
      Initialize; { open global INFILE }
      if Error = 0 then
        begin
          Process; { calculate number of words in file }
          if Error = 0 then
            Final; { close INFILE }
          end; {if}
        end
    else
      begin
        DisplayUsage;
      end; {if}
    Writeln;
    Writeln ('End Of Program WRDCOUNT.COM');
end. {Main}

```

# FLIGHT



The 747 program lets the pilot activate the control surfaces of the jet aircraft, adjust engine thrust, and tune the navigational radio equipment by pressing a set of keys.

The program responds to the key press commands by adjusting aircraft attitude to match the control surfaces and updating the instrument panel display every four seconds as the trajectory of the airliner is tracked through space by the computer.

The instrument panel gives the pilot all the flight information he needs to take off, navigate, and land an aircraft using standard flight procedures and radio facilities established for modern-day flying.

The panel functions to reveal

what the aircraft is doing and where it is located, so that after a short period of training the pilot knows instinctively how to scan and interpret the panel data.

Position tracking, a vital ingredient in the simulation, is performed in real time to keep the flight situation up to date.

Although the pilot completely controls the motion of the aircraft, wind forces that vary with altitude can influence the flight.

The program uses an analytical combination of jet and wind motion to solve the "wind triangle" that is formed whenever an aircraft is aloft and moving through layers of air.

The wind-triangle solution

yields the "true" motion of the jet relative to the earth's surface.

When simulation begins, the aircraft is poised for takeoff on the runway at Philadelphia International Airport.

The geographic coordinates of Philadelphia mark the starting point of the flight. The computer fixes this initial position in memory and outputs a new longitude and latitude 15 times a minute.

The pilot controls the path of the aircraft during the takeoff roll down the runway. If everything is done correctly in the cockpit, this path will lead to a takeoff with room to spare.

Once airborne, the aircraft is tracked against a grid of meridians and parallels, an

## by Jean Szymanski

the landing end of the runway, deflect an indicator on the instrument panel of the landing aircraft and give the pilot an exact path to follow during the final approach to the airport.

Because the program knows precisely where the pilot is telling the plane to go, the program will continue to run until the aircraft lands safely and rolls to a halt or until the flight ends in disaster.

The aircraft is parked in the take off position with its engines idling, ready to go when its brakes are released. (NOTE: Caps Lock must be engaged and remain on for all key commands.)

To prepare for takeoff, press L key to lower the flaps and check the panel FLAP indicator. A down position shows that the wing flaps are now extended.

The flaps provide the vital extra lift needed during takeoff and landing, when the airspeed is marginal.

Next, release the wheel brakes (W key). The aircraft will begin to move slowly because the engines are only idling. To apply full takeoff power, press F key and watch the THRUST lever indicator move to its maximum forward position.

The aircraft will now gradually accelerate up to its rated takeoff speed of 150 knots (173 mph).

The AIRSPEED indicator begins to register, and you must steer the aircraft (< key & > key) as winds gusts blow across the runway.

A sliding arrow at base of the runway indicates your position relative to the 200 foot wide runway.

You should maintain a compass heading of 075 degrees.

At 150 knots you press the U key once, and once only, to lift the nose 10 degrees.

Immediately after takeoff you must:-

1. raise the landing gear (W)
2. retract the wing flaps (L)
3. reduce thrust (S) to reduce engine noise before the ALTITUDE indicator reads 1200 feet.

If you do everything correctly the screen will erase to indicate a successful takeoff and display a complete instrument panel.

As you slowly climb over central New Jersey and head towards the Atlantic coast you must navigate the aircraft to within a few hundred feet of the destination airport of your choice.

This lesson will give you a "feel" for the controls and show you how they relate to the instrument panel functions. The PITCH indicator shows that the nose is tilted up (positive pitch) at 10 degrees.

With the current position of the THRUST lever, the aircraft is climbing at the rate of 6704 feet per minute (VERTICAL SPEED). Press the D key twice to level the nose to zero-degree

pitch.

The AIRSPEED will increase, VERTICAL speed will become zero, and the ALTITUDE will remain constant. Each press of the U or D keys will change the pitch by 5 degrees.

Whenever climbing or descending the \* key should be used to return to level flight when the desired altitude is reached.

You can steer to a new COMPASS course by pressing < key to begin a slow turn to the left and watch both the COMPASS and the rudder angle (RUD).

Each additional press of the rudder key will make the turn more acute causing the COMPASS to swing faster.

Always use the rudder-cancel key (/) to stop further turning when the COMPASS indicates the desired course.

AIRSPEED is adjusted by the thrust keys F and S one step at a time.

The normal cruising speed of a 747 is 600 knots and for a given thrust setting the AIRSPEED will drop during a climb and increase during descent.

Because the instrument response time is 4 seconds, you must delay consecutive applications of the control keys until the panel instrument readings catch up.

The aircraft will automatically level off at 45,000 feet.

The VLF OMEGA INDICATOR tracks the aircraft with longitude and latitude being displayed by the OMEGA read-out fixing the exact geographic position of the aircraft as it is manoeuvred through computer simulated Winds.

This results in an effective real-time simulation of the actual OMEGA system.

Generally the OMEGA system is only used for flying between continents.

For short-range and cross-country flights, most aircraft - and this program - rely on a more convenient system popularly known as VOR (VHF Omnidirectional Ranges).

Most aircraft navigate from point to point using VOR radio facilities.

A ground station transmits radio beams that radiate horizontally outward in all directions like the spokes of a wheel.

Each spoke or radial (there are 360) is fixed in direction and can be used to provide an accurate and un-varying path to its source, the VOR station transmitter.

To navigate from Philadelphia to Buffalo, New York, first your VOR receiver to 116.4 MHz (the frequency assigned to the Buffalo VOR station) and select the desired radial, 115 degrees in this example.

Rotate the radial dial until it points to 295 degrees, the reciprocal value.

involved computation that requires the program to use spherical trigonometry because of the earth's curved surface.

Because the geographic coordinates of airports and radio beacons are stored in the computer's memory, a comparison of the positions yields the information it needs to update the instrument panel the pilot uses to navigate.

An instrument landing, the trickiest part of any actual flight, is also the most complex operation for the computer simulate.

This type of landing requires a programmed geometry to simulate the Instrument Landing System (ILS) pattern formed by special radio beams.

These beams, which converge at

---

The Listing:

```
1 REM: PROGRAM NAME = JETSET
2 REM: IFR FLIGHT SIMULATOR (BOEING 747)
3 REM: CREATED 06/28/81 BY JEAN SZYMANSKI
9 REM: SYSTEM "CLOCK OFF"
10 GOTO 10000
23 REM: BEGIN CRUISE MODULE HERE
24 CLS:CLEAR 2000:RANDOMIZE 57.2958
25 DIM M$(20)
26 KR=57.2958:XQ=64
27 RS=1:IF RND(0)<.5 THEN RS=-1
28 RW=(15-5)*RND(0)+5
29 RW=RS*RW
30 REM:SET UP WIND TABLE
32 DIM WA(10,1)
34 FOR I=0 TO 7:WA(I,0)=RND(359):NEXT
36 FOR I=8 TO 10:WA(I,0)=90*RND(0)+225:NEXT
38 A=0
40 FOR I=1 TO 10:WA(I,1)=25*RND(0)+A:A=A+25:NEXT
41 RS$(0)=STRINGS(31," ")
42 RS$(1)=SPACE$(13)+"."+" "+SPACE$(13)
43 RS$(2)=SPACE$(11)+"."+" "
44 RS$(3)=SPACE$(9)+STRINGS(13," ")
45 REM:VOR STATION FREQUENCY TABLE
46 DIM VF(15)
47 VF(0)=115.9:VF(1)=113.8:VF(2)=112.7
48 VF(3)=117.7:VF(4)=117.8:VF(5)=112.2
49 VF(6)=117.4:VF(7)=115.5:VF(8)=116.4
50 VF(9)=113.6:VF(10)=116.9:VF(11)=117!
51 VF(12)=112.3:VF(13)=117.9:VF(14)=115.7
52 VF(15)=112.8
62 REM: ILS CONSTANTS FOR AIRPORTS
63 DIM VG(15,1)
64 VG(0,0)=238:VG(0,1)=28
66 VG(2,0)=240:VG(2,1)=30
69 VG(5,0)=90:VG(5,1)=217
71 VG(7,0)=299:VG(7,1)=164
72 VG(8,0)=166:VG(8,1)=42
79 VG(15,0)=341:VG(15,1)=75
100 REM:VOR STATION COORDIATES TABLE
101 DIM VP(15,1)
102 VP(0,0)=40.633:VP(0,1)=73.773
103 VP(1,0)=40.202:VP(1,1)=74.495
104 VP(2,0)=42.358:VP(2,1)=70.993
105 VP(3,0)=41.282:VP(3,1)=70.027
106 VP(4,0)=42.74301:VP(4,1)=73.802
107 VP(5,0)=46.412:VP(5,1)=84.315
108 VP(6,0)=38.35:VP(6,1)=81.77001
109 VP(7,0)=40.917:VP(7,1)=77.993
110 VP(8,0)=42.928:VP(8,1)=78.67401
111 VP(9,0)=41.358:VP(9,1)=82.162
112 VP(10,0)=42.967:VP(10,1)=83.72401
113 VP(11,0)=44.555:VP(11,1)=88.19501
114 VP(12,0)=41.547:VP(12,1)=88.318
115 VP(13,0)=39.495:VP(13,1)=76.97801
116 VP(14,0)=42.048:VP(14,1)=83.458
117 VP(15,0)=39.637:VP(15,1)=75.303
155 DATA FUEL,LBS,%:VHF,MHZ,THRUST,MAX, IDLE, REV
160 DATA PITCH,"+", "-": DEG,FLAPS,UP,DWN,WHEELS,UP,MID,DOWN
165 DATA COMPASS,AIRSPEED,KTS," VERT", SPEED, FPM
170 DATA ALTITUDE,FEET,CLOCK
175 DIM PS$(28)
180 FOR I=0 TO 28:READ PS$(I):NEXT
185 DIM SS$(25)
190 FOR I=1 TO 25:SS$(I)=SPACES$(I):NEXT
192 FOR I=0 TO 9:F(I)=0:NEXT
195 REM:INIT FLIGHT VARIABLES TO STATE AT LIFTOFF
```

```
196 FU=195480!:FP=63:CC=75:ZS=380:RC=6704:AL=1900
198 MZ=122:TR=4:PL=1:FA=10:BR=10:WH=10
200 RA=0:ZS(1)=380:FA(1)=10:CC(1)=75:AL(1)=1900:RP=40
201 DP(4)=39:DP(5)=52:DP(6)=75:DP(7)=15
202 L1=39.0667:G1=75.25:LL(1)=L1:GL(1)=G1:LS(1)=L1:GS(1)=G1
203 VO(1)=0:VO$(1)="OUT":VO(3)=0:VO(4)=999.9
204 GX(0)=0:GY(0)=0
205 XO=36481!:YO=0
220 IV$=TIME$:GOSUB 7050:TL=TD
221 TW(1)=TD
222 GOSUB 335
224 GOSUB 600
300 K$=INKEY$:IF LEN(K$)=0 GOTO 304
302 GOSUB 800
304 GOTO 1000
335 REM:DISPLAY PANEL (HEADERS ONLY)
340 LOCATE 1,4:PRINT P$(0);S$(4);P$(5);S$(3);P$(9);S$(3);S$(6);S$(3);P$(20)
341 LOCATE 10,55:PRINT P$(13);S$(3);P$(16)
342 LOCATE 11,57:PRINT P$(14);S$(6);P$(14)
343 LOCATE 13,57:PRINT P$(15);S$(5);P$(15)
345 LOCATE 2,14:PRINT P$(6);S$(6);P$(10);S$(6)
350 LOCATE 2,69:PRINT P$(28)
355 LOCATE 3,2:PRINT P$(1);S$(4);P$(2);S$(21);S$(3);S$(13);P$(23)
360 LOCATE 4,23:PRINT P$(11);S$(13);P$(21);S$(2);P$(24);S$(2);P$(26)
365 LOCATE 5,1:PRINT P$(3)
370 LOCATE 6,40:PRINT P$(22);S$(6);P$(25);S$(5);P$(27)
375 LOCATE 7,1:PRINT P$(4);S$(10);P$(7);S$(3);P$(12);S$(7)
380 LOCATE 8,2:PRINT P$(8)
381 LOCATE 4,69:PRINT"VLF OMEGA":LOCATE 5,66:PRINT"LAT"
382 LOCATE 6,65:PRINT"LONG"
383 LOCATE 7,33:PRINT". . . : . . . .":LOCATE 9,40:PRINT"RUD"
384 LOCATE 10,33:PRINT CHR$(201);STRING$(15,205);CHR$(187)
386 FOR X = 32 TO 48 STEP 16
387 FOR Y = 10 TO 22
388 LOCATE (Y+1),(X+1):PRINT CHR$(186);
389 NEXT Y
390 NEXT X
391 LOCATE 24,33:PRINT CHR$(200);STRING$(15,205);CHR$(188);
392 LOCATE 11,40:PRINT"VOR":LOCATE 12,45:PRINT"MHZ"
393 LOCATE 15,39:PRINT"RANGE"
394 LOCATE 17,36:PRINT"....."
395 LOCATE 20,39:PRINT"RADIAL"
396 LOCATE 22,40:PRINT"DME":LOCATE 23,45:PRINT"NM":
397 FOR Y = 1 TO 7:LOCATE (Y+1),13:PRINT CHR$(195):NEXT
398 FOR Y = 1 TO 3:LOCATE (Y+1),22:PRINT CHR$(195):NEXT
400 LOCATE 15,1:PRINT CHR$(201);STRING$(15,205);CHR$(187)
402 FOR X = 0 TO 16 STEP 16
404 FOR Y = 15 TO 21
406 LOCATE (Y+1),(X+1):PRINT CHR$(186);
408 NEXT Y
410 NEXT X
412 LOCATE 23,1:PRINT CHR$(200);STRING$(15,205);CHR$(188);
414 LOCATE 14,8:PRINT"ILS"
416 LOCATE 18,20:PRINT"MARKER":LOCATE 19,21:PRINT"> <""
418 GX(1)=0:GY(1)=0
420 GOSUB 2100
422 COLOR 0,7:LOCATE 11,8:PRINT" "
424 COLOR 7,0:LOCATE 10,5:PRINT"RADAR ALT";SPC(6);"STALL"
425 LOCATE 11,19:PRINT"> <""
599 RETURN
600 REM:DISPLAY INSTRUMENT READINGS
601 GOTO 720
605 YP=1:XP=0:F$="# #####":V1=FU:GOSUB 9000
606 LOCATE 1,67:COLOR 0,7:PRINT TIME$:COLOR 7,0
610 YP=1:XP=7:F$="# ##":V1=FP:GOSUB 9000
615 YP=1:XP=39:V1=CC:GOSUB 9000
620 YP=4:XP=39:V1=ZS:GOSUB 9000
625 YP=4:XP=46:F$="# #####":V1=RC:GOSUB 9000
```

```

630 YP=4:XP=55:F$="##,##":V1=AL:GOSUB 9000
635 YP=5:XP=0:F$="##":V1=MZ:GOSUB 9000
636 IF F(2)=1 THEN YP=10:XP=6:F$="#####":V1=AL:GOSUB 9000
640 REM:DISPLAY THRUST
650 FOR I = 1 TO 7
651 LOCATE (I+1),12:PRINT" ";CHR$(195)
652 NEXT
655 LOCATE (TR+1),12:PRINT">";
660 REM:DISPLAY FLAPS
665 FOR I = 1 TO 3:LOCATE (I+1),21:PRINT" ";CHR$(195):NEXT
670 LOCATE (FL+1),21:PRINT">""
674 F$="+##"
675 YP=5:XP=20:V1=FA:GOSUB 9000
676 IF F(6)=0 THEN SX=25:COLOR 7,0:GOTO 679
677 IF SX=25 THEN SX=26:COLOR 0,7:GOTO 679
678 SX=25
679 IF F(7)=0 THEN LOCATE 11,20:PRINT"      ":COLOR 7,0
680 REM:DISPLAY BRAKES
690 FOR I=10 TO 12:LOCATE (I+1),55:PRINT" ";CHR$(195):NEXT
695 LOCATE (BR+1),55:PRINT">""
700 REM:WHEELS
705 FOR I=10 TO 12:LOCATE (I+1),63:PRINT" ";CHR$(195):NEXT
710 LOCATE (WH+1),63:PRINT">""
711 IF F(2)=1 GOTO 723
712 REM:DISPLAY LAT/LONGITUDE
713 YP=4:XP=69:F$="##":V1=DP(4):GOSUB 9000
714 YP=4:XP=73:F$="##.##":V1=DP(5):GOSUB 9000
715 YP=5:XP=69:F$="##":V1=DP(6):GOSUB 9000
716 YP=5:XP=73:F$="##.##":V1=DP(7):GOSUB 9000
717 LOCATE 5,79:PRINT"N"
718 LOCATE 6,79:PRINT"W"
719 GOTO 723
720 REM:DISPLAY RUDDER POSITION
721 LOCATE 8,33:COLOR 0,7:PRINT S$(17)
722 LOCATE 8,(RP+1):PRINT CHR$(186):COLOR 7,0:GOTO 605
723 IF F(2)=1 THEN RETURN
724 REM:DISPLAY VOR VALUES
725 YP=11:XP=38:F$="##,##":V1=VO(1):GOSUB 9000
726 COLOR 0,7:LOCATE 14,40:PRINT VO$(1):COLOR 7,0
727 YP=18:XP=39:F$="##":V1=VO(3):GOSUB 9000
728 YP=22:XP=38:F$="##,##":V1=VO(4):GOSUB 9000
729 COLOR 0,7:LOCATE 18,35:PRINT S$(13):COLOR 7,0
730 IF VO$(1)="OUT " GOTO 732
731 LOCATE 18,(VO(2)+1):PRINT CHR$(24)
732 RETURN
800 REM:KEY POLL SUBROUTINE
805 IF K$="F" OR K$="S" THEN KK=1:GOTO 850
810 IF K$=",." OR K$=".," THEN KK=2:GOTO 850
811 IF K$="/" THEN RA=0:GOTO 855
825 IF K$="U" OR K$="D" THEN KK=3:GOTO 850
830 IF K$="W" THEN KK=4:GOTO 850
835 IF K$="V" THEN KK=5:GOTO 850
836 IF K$="R" THEN KK=6:GOTO 850
837 IF K$="L" THEN KK=7:GOTO 850
838 IF K$="A" THEN KK=8:GOTO 850
839 IF K$="Q" THEN KK=9:GOTO 850
840 IF K$="M" THEN KK=10:GOTO 850
841 IF K$="C" THEN KK=11:GOTO 850
842 GOTO 855
850 ON KK GOSUB 900,908,914,928,931,935,940,944,946,950,953
855 RETURN
900 REM:THRUST KEY
902 IF K$="F" THEN TR=TR-1 ELSE TR=TR+1
904 IF TR<1 THEN TR=1:RETURN
906 IF TR>6 THEN TR=6:RETURN
907 RETURN
908 REM:RUDDER KEYS
909 IF K$=",." GOTO 912 ELSE RA=RA+1

```

# COMPUTER RESOURCE DATABASE

**G**oldsoft Publishing endeavours to place current data into the Computer Resource Database. However, Goldsoft Publishing makes no claims as to the accuracy of the information supplied for use in this database.

Prices quoted were current at the time of entry. Where two suppliers have differing prices, we have quoted the highest price.

The Database is a free service of Goldsoft Publishing. If you market a product for use with the computers we service in this magazine, you can forward information to:

CRD Manager  
Goldsoft Publishing  
PO Box 1742  
Southport, Old. 4215.

Please note that many programs have fuller descriptions on the monthly disk which partners this magazine. (See contents page for details of this disk.)

**Rating explanation :**

\* is used for products we have used or tested

@ is used for the reputation of a product

The number of symbols defines the opinion or reputation ie:

1 symbol is a poor rating and 5 symbols is a good rating

Lack of symbols simply means we have not commented on the product

It does not infer the product is of poor quality

A good middle of the road product has 3 symbols.

**Source explanation :**

**A** = Goldsoft

**B** = Tandy

**C** = Blaxland

**GAME**

Name	Source	Hardware	Price	Rating
ULTIMA II	A	COMPATIBLE	69.95	***
STAR TREK	A	COMPATIBLE	49.95	****
CHAMP BOXING	A	COMPATIBLE	69.95	***
SPACE QUEST	B	COMPAT	89.95	@@@
KINGS QUEST III	B	COMPAT	89.95	@@@@
FLT SIMULATOR	B	COMPAT	129.95	****
GHOSTBUSTERS	B	COMPAT	69.95	****
S.D.I.(Starwar)	C	COMPAT	79.00	@@@
GFL (Gridiron)	C	COMPAT	68.80	@@@
WINTER GAMES	C	COMPAT	69.95	@@@
CHAMP. GOLF	C	COMPAT	70.00	@@@
ACE II	C	COMPAT	34.99	@@@
AIR COMBAT	C	COMPAT	34.99	@@@
GAMMA GAMES	C	COMPAT	49.99	@@@
LOTTO CHECKER	C	COMPAT	69.99	@@@
MONTEZUMAS REV	C	COMPAT	39.99	@@@
PACLAND	C	COMPAT	39.99	@@@
RED OCTOBER	C	COMPAT	39.99	@@@
SABOTEUR II	C	COMPAT	29.99	@@@
SKYRUNNER	C	COMPAT	34.99	@@@
TETRIS	C	COMPAT	49.99	@@@
SPITFIRE 40	C	COMPAT	49.99	@@@@
BEYOND WOLFENST	C	COMPAT	19.99	@@@
CASTLE WOLFENST	C	COMPAT	19.99	@@@
CROSSFIRE	C	COMPAT	19.99	@@@
FACT'TIC TRIVIA	C	COMPAT	19.99	@@@
SHOWTIME TRIVIA	C	COMPAT	19.99	@@@
GAMES PAK 1	C	COMPAT	29.99	@@@
GAMES PACK 2	C	COMPAT	29.99	@@@
GAMES PAK 3	C	COMPAT	29.99	@@@
STAR MAXX	C	COMPAT	24.99	@@@
TIC TAC TOE	C	COMPAT	19.99	@@@
MUSIC TRIVIA 1	C	COMPAT	19.99	@@@
MUSIC TRIVIA 3	C	COMPAT	19.99	@@@
MUSIC TRIVIA 3	C	COMPAT	19.99	@@@
BLACKJACK	C	COMPAT	19.99	@@@
BOULDER DASH 1	C	COMPAT	19.99	@@@
BOULDER DASH 2	C	COMPAT	19.99	@@@
COMPACT DISK 1	C	COMPAT	19.99	@@@
COMPACT DISK 2	C	COMPAT	19.99	@@@
FOOTBALL M'GER	C	COMPAT	19.99	@@@
MIND DANCE	C	COMPAT	19.99	@@@
POKER	C	COMPAT	19.99	@@@
ARMCHAIR QTRBAC	C	COMPAT	19.99	@@@
THE THING	C	COMPAT	19.99	@@@

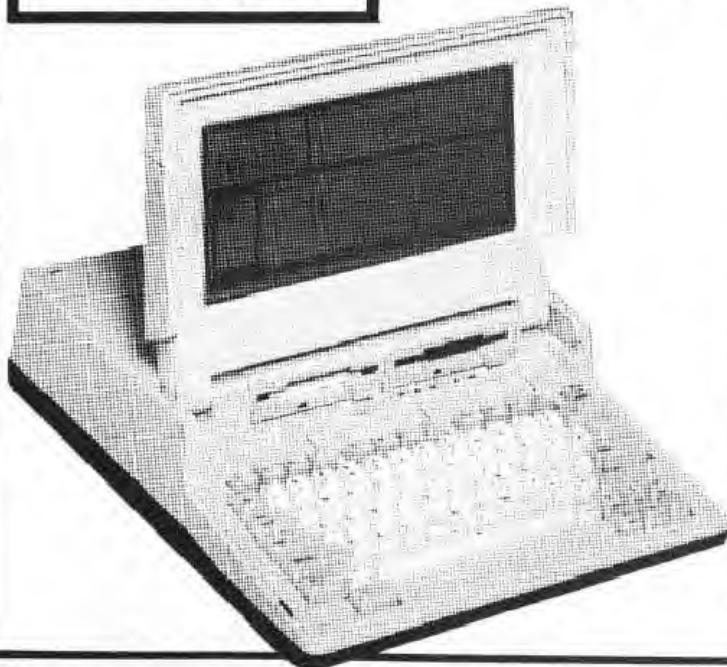
THE HOBBIT	C	COMPAT	44.95	@@@
LORD OF THE RNG	C	COMPAT	44.95	@@@
METROPOLIS	C	COMPAT	49.95	@@@
AAARGH!	C	COMPAT	49.95	@@@
ROCKFORD	C	COMPAT	49.95	@@@
BOP 'N WRESTLE	C	COMPAT	29.95	@@@
BEDLAM	C	COMPAT	29.95	@@@
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DIPLOMACY	C	COMPAT	59.95	@@@
ANALS OF ROME	C	COMPAT	59.95	@@@
HACKER II	C	COMPAT	59.00	@@@
DEF'DR OF CROWN	C	COMPAT	79.00	@@@
WAR AT SEA	C	COMPAT	89.00	@@@
KARATEKA	C	COMPAT	59.00	@@@
BAL. OF POWER	C	COMPAT	79.00	@@@
CRUSADE IN EUR.	C	COMPAT	53.00	@@@
CON. IN VIETNAM	C	COMPAT	53.00	@@@
DECISION DESERT	C	COMPAT	53.00	@@@
GUNSHIP	C	COMPAT	89.95	@@@
10TH FRAME	C	COMPAT	59.00	@@@
SHANGHAI	C	COMPAT	69.95	@@@
SHENANIGANS	C	COMPAT	55.95	@@@
TREKBOER	C	COMPAT	55.95	@@@
VORTEX FACTOR	C	COMPAT	55.95	@@@
CALIXTO ISLAND	C	COMPAT	55.95	@@@
BLACK SANCTUM	C	COMPAT	55.95	@@@
SEA QUEST	C	COMPAT	55.95	@@@
BLACK CAULDRON	C	COMPAT	79.95	@@@
KINGS QUEST III	C	COMPAT	89.95	@@@
MAESTRO	C	T1000	79.95	@@@
WORLD TOUR GOLF	C	COMPAT	79.95	@@@
M'SCOPIC MISS'N	C	COMPAT	69.95	@@@
F15 STRIKE EAGL	C	COMPAT	79.95	@@@
GATO	A	COMPAT	68.00	@@@
SARGON III	A	COMPAT	96.00	@@@
ZORK I	A	COMPAT	79.00	@@@
ZORK II	A	COMPAT	79.00	@@@
ZORK III	A	COMPAT	79.00	@@@
TRINITY	A	COMPAT	79.00	@@@
BALLYHOO	A	COMPAT	79.00	@@@
HITCH HIKERS GU	A	COMPAT	79.00	@@@
CROSSWORD MAGIC	A	COMPAT	68.00	@@@
AMER. CHALLENGE	A	COMPAT	68.00	@@@
BALANCE OF POWE	A	COMPAT	89.00	@@@
RACTER	A	COMPAT	79.00	@@@
JET	A	COMPAT	114.00	@@@
MOONMIST	A	COMPAT	79.00	@@@
SHANGHAI	A	COMPAT	68.00	@@@

#### EDUCATIONAL

Name	Source	Hardware	Price	Rating
FUNDAMENTALS	B	1000 EX	69.95	@@@
BASIC TUTOR	B	1000	14.95	@@@
TYPEQUICK	B	T1000/2000	87.00	@@@
LONG DIV TUTOR	B	16K COCO2	27.95	@@@
MULT TUTOR	B	16K COCO2	27.95	@@@

**Tandy**  
ELECTRONICS

## New Dual-Disk MS-DOS Laptop Computer — A Technological Breakthrough



**BONUS!**  
Tandy 1400 LT  
Carry Case with  
Every Purchase  
of a 1400 LT  
Computer. 25-3511  
**Value \$79.95**



**Tandy 1400LT.** Introducing the portable computer — ideal for the busy executive, salesperson or student. Comes complete with 768K RAM and two built-in 8.9cm disk drives. The Tandy 1400 LT includes MS-DOS/BASIC 3.2 and is IBM® PC compatible. But best of all, the 80-character by 25 line "supertwist" LCD display is remarkably clear and backlit for easy reading, no matter where you are! This year choose the best in portable computers — the Tandy 1400 LT. 25-5500

**3299.00**

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**Carry Case for Tandy 1400 LT.** 25-3511      **79.95**

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## Convenient Tandy 102 Portable Computer

- \* 24K Memory
- \* Five Built-In Management Programs

**Tandy 102.** This slim lightweight portable computer is ideal for people that like convenience! Features five instant-on programs, a 40 x 8 display and modem — all built-in. And offers the versatility of batteries or an optional AC adapter. Use the Tandy 102 as a personal word processor, address/phone directory, appointment calendar, telephone auto-dialler or simply write your own programs in BASIC. Includes parallel, RS-232c cassette and bar code recorder interfaces. Requires battery/mains adapter. 26-3808      **999.00**

**Tandy 102 8K RAM Upgrade.** 26-3817      **34.95**

**AC Adapter.** (For T100/102/200/Portable disk drive 2). 26-3804      **19.95**



**Save \$100**

Reg 399.95

**299.95**

**SUPER SAVER**

Add portable disk storage to  
Model 102. Fast access to 200K.  
Req batt or adapter. 26-3814

### Portable 8.89cm Floppy Disk Drive



### Computer Accessories

**Model 100 Technical Reference Manual.** 26-3810 Reg 14.95      Sale! 5.95

**Model 100 8K RAM Upgrade.** 26-3816

Reg 139.95      Sale! 99.95

**TRS-80 Model 100 Portable Computer.** Step-by-step learner's manual. 26-3819 Reg 28.95

**Sale! 9.95**

**Portable Computing with the Model 100.** 26-3820 Reg 28.95

**Sale! 9.95**

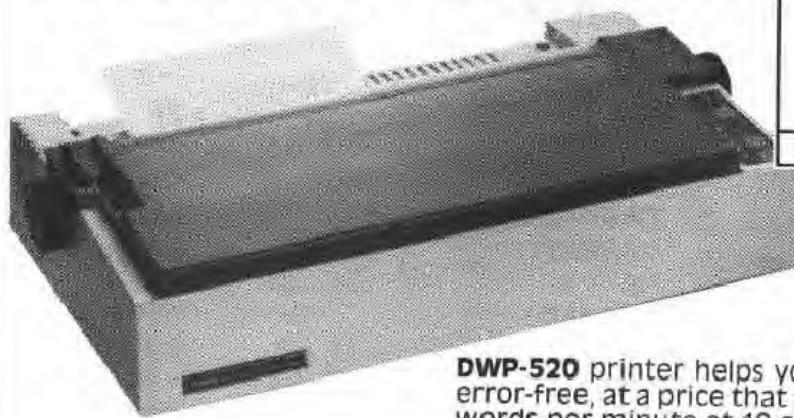
**Printer Cable.** For 100/102/200. 26-1409

**29.95**

**RS-232c Serial Interface Cable.** 26-1408

**44.95**

# Terrific Sale! This Daisy-Wheel Printer will Clean Up Your Correspondence



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Reg 1899.00

**1299**

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**Bi-Directional Tractor** For DWP-520.  
For more efficiency, 26-2801 **269.95**

**DWP-520** printer helps you keep your communications neat and error-free, at a price that fits into your business budget. Prints 500 words per minute at 10 or 12 characters per inch or proportional pitch. IBM® PC compatible parallel interface. Includes courier-10 print wheel and carbon ribbon. 26-2800

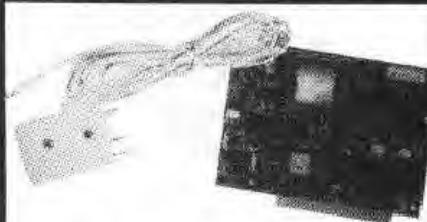
**PTC-64 Printer Controller.** 26-1269 Reg 349.95 **Save \$150** **Sale! 199.95**



**VM-1 Monitor Pedestal.** Supports monitor and allows personal positioning. Keyboard/monitor not included. 26-5115  
Reg 179.95 **49.95**



**Tandy V21/23 Modem.** Gain access to Telecom's Viatel for a host of services. Telecom Approved. 26-9404 **399.95**



**Internal Modem** for Tandy 1000/3000. Eliminates acoustic interference & data corruption. 25-9402 **\$699**

## New . . . Tandy 1000 Software!

<b>F-15 Strike Eagle.</b> Soar in an F-15 to meet enemy in attack scenarios. 25-1125	<b>79.95</b>
<b>Black Cauldron.</b> 3-D animation game. 25-1133	<b>79.95</b>
<b>Maestro.</b> Music program. 25-1179	<b>79.95</b>
<b>World Tour Golf.</b> Play international golf. 25-1191	<b>79.95</b>
<b>Sargon III.</b> Chess game for 1000/3000. 25-1192	<b>59.95</b>
<b>Silent Service.</b> WWII game for 1000/3000. 25-1193	<b>79.95</b>
<b>Shanghai.</b> Tension game. 25-1194	<b>69.95</b>
<b>Gunship.</b> Simulation program. 25-1305	<b>89.95</b>
<b>Winter Games.</b> Selection of wintersports. 25-1195	<b>79.95</b>
<b>Print Shop.</b> Graphics and design. 25-1304	<b>109.95</b>
<b>PFS: Professional File.</b> Your own financial management pack. 25-1171	<b>399.95</b>
<b>Managing Your Money.</b> A complete management/reporting program. 25-1159	<b>399.95</b>

## New . . . CoCo 3 Software!

<b>Multi-Vue.</b> Graphics program. 26-3035	<b>99.95</b>
<b>Thexder.</b> Action game. 26-3072	<b>49.95</b>
<b>Springster.</b> 3-D maze game. 26-3078	<b>49.95</b>
<b>Shanghai.</b> Tension game. 26-3084	<b>49.95</b>
<b>Microscopic Mission.</b> Pilot a microscopic probe through the human body. 26-3271	<b>54.95</b>
<b>Sub Battle Simulator.</b> Challenge game. 26-3272	<b>59.95</b>
<b>Home Publisher.</b> 26-3273	<b>59.95</b>
<b>Phantomgraph.</b> Turn data into graphs. 26-3276	<b>89.95</b>
<b>Color Computer Artist.</b> 26-3277	<b>69.95</b>
<b>Rogue.</b> Mystery game. 26-3297	<b>59.95</b>
<b>Kings Quest III.</b> Adventure game. 26-3285	<b>79.95</b>
<b>Galagon.</b> Alien space game. 26-9645	<b>24.95</b>
<b>Ghost Gobbler.</b> Super maze game. 26-9647	<b>24.95</b>
<b>Color Golf.</b> Golf simulation game. 26-9648	<b>24.95</b>

# Tandy

ELECTRONICS

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Independent Tandy Dealers may not be participating in this ad or have every item advertised.  
Prices may also vary at individual Dealer Stores.

FACTORS TUTOR	B	16K COCO2	27.95	@@@
METEOR MULT'N	B	128K T1000	66	@@@
ALLIGATOR MIX	B	128K T1000		@@@
MEMO WRITER	B	T1000 128K	112.00	@@@
CHILD SPELLER	B	128K T1000	112.00	@@@
NEWSROOM	B	256K T1000	112.00	@@@
DBASE III+	B	T1/3000	1470.00	@@@
DATAFLEX	B	T1/3000	*248.00	@@@
M'SOFT RBASE	B	T1/3000	1017.00	@@@
REFLEX	B	T1/3000	414.00	@@@
MATH BLASTER	C	COMPAT	90.65	@@@
SPEED READER II	C	COMPAT	125.00	@@@
SPEED RDR DATA	C	COMPAT	39.00	@@@
CHEM LAB	A	COMPAT	69.95	@@@
CREATURE CREATR	A	COMPAT	59.95	@@@
CRYPTO CUBE	A	COMPAT	59.95	@@@
DECIMAL DUNGEON	A	COMPAT	49.95	@@@
DONALD DUCK	A	COMPAT	59.95	***
EUROPE NATIONS	A	COMPAT	59.95	@@@
FRACTION ACTION	A	COMPAT	49.95	@@@
MATH MAZE	A	COMPAT	59.95	@@@
MICKEYS ADVENTU	A	COMPAT	69.95	@@@
MISSION ALGEBRA	A	COMPAT	59.95	@@@
CAR RITHMATIC	A	COMPAT	49.95	@@@
REMEMBER	A	COMPAT	89.95	@@@
SHIPS AHoy	A	COMPAT	59.95	***
SPELLAGRAPH	A	COMPAT	59.95	@@@
SPELLAKAZAM	A	COMPAT	59.95	@@@
SPELLICOPTER	A	COMPAT	59.95	***
TEN LITTLE ROBO	A	COMPAT	49.95	@@@
WINNIE THE POOH	A	COMPAT	69.95	@@@

#### UTILITY

Name	Source	Hardware	Price	Rating
DD DIAGNOSTIC	B	1000	59.95	@@@
DD ANALYZER	B	3000HL/HD	49.95	@@@
FORTAN	B	T1/2/3000	249.95	@@@
PASCAL	B	T1/3000	676.00	@@@
PASCAL	B	T 2000	549.00	@@@
MASM	B	T 1/3000	449.00	@@@
COCO-UTIL	B	T1000 2 FDD	65.95	@@@
SIDEKICK	B	T1/3000	155.00	@@@
LETRIX	B	T1/3000	190.00	@@@
M'SOFT CHART	B	T1/3000	654.00	@@@
M'SOFT PROJECT	B	T1/3000	881.00	@@@
SUPER PROJECT	B	T1/3000	932.00	@@@
DOSMATE	C	COMPAT	89.00	****
WSHELP 3	C	COMPAT WS 3	69.00	@@@
WSHELP 4	C	COMPAT WS 4	89.00	@@@
MS-DOS 3.3	C	COMPAT	195.00	@@@
PROKEY	C	COMPAT	195.00	@@@
INSIDE TRACK	C	COMPAT	85.00	@@@
PRINTMASTER	C	COMPAT	96.35	@@@
ART GALLERY 1	C	PM & COMPAT	56.65	@@@
ART GALLERY 2	C	PM & COMPAT	56.65	@@@
NEWSROOM	C	COMPAT	101.95	@@@
CLIP ART 1	C	COMPAT	50.95	@@@

CLIP ART 2	C	COMPAT	62.35	@@@
CLIP ART 3	C	COMPAT	62.35	@@@
PRINTSHOP	C	COMPAT	109.95	@@@
P'SHOP LIB 1	C	COMPAT	59.95	@@@
P'SHOP LIB 2	C	COMPAT	59.95	@@@
NEWSMASTER	C	COMPAT	170.00	@@@
PRODESIGN	C	COMPAT	630.00	****
GREETING CARD	C	COMPAT	29.99	@@@
SIGN & BANNER	C	COMPAT	29.99	@@@
STATIONARY MAKR	C	COMPAT	29.99	@@@
TYPING TUTOR	C	COMPAT	24.99	@@@
SIDEKICK	A	COMPAT	215.00	@@@
TURBO PASCAL 87	A	COMPAT	261.00	****
TBO PSCL BCD 87	A	COMPAT	244.00	****
VTEX2	A	COMPAT	250.00	****

#### BUSINESS

Name	Source	Hardware	Price	Rating
SCRIPSIT	B	T-1000	699.95	@@@
SCRIPSIT	B	T-3000	599.00	@@@
PROFILE 286	B	XENIX V/286	1399.00	@@@@
PFS:PRO FILE	B	256K & 2 FD	495.00	@@@
PRO DESKMATE	B	1000/3000	149.95	@@@@
MICROSOFT WORKS	C	COMPAT	370.00	@@@
PEEKS & POOKS	C	COMPAT	66.00	@@@
FBS ACCOUNTING	C	COMPAT	830.00	@@@
FBS PAYROLL	C	COMPAT	630.00	@@@
FBS MATERIALS	C	COMPAT	630.00	@@@
FBS JOB COSTING	C	COMPAT	630.00	@@@
TOTAL ANSWERS	C	COMPAT	89.99	@@@
BIZ PAK 1	C	COMPAT	29.99	@@@
BUSINESS GRAPHS	C	COMPAT	24.99	@@@
BUS. STRATEGIST	C	COMPAT	24.99	@@@
BUS. SOFT TUTOR	C	COMPAT	19.99	@@@
DATABASE M'GER	C	COMPAT	24.99	@@@
FIN. WORKSHEET	C	COMPAT	24.99	@@@
PRO DISK M'GER	C	COMPAT	24.99	@@@
REFLEX	C	COMPAT	207.35	@@@@
PRODESIGN	C	COMPAT	630.00	@@@
CLIPPER	C	COMPAT	599.00	@@@
DAC ACCOUNTING	C	COMPAT	250.00	@@@@
DAC EASY WP	C	COMPAT	129.00	@@@
ABILITY	C	COMPAT	220.00	@@@@
IN HOUSE ACCT	C	COMPAT	199.00	@@@
DBASE II	A	COMPAT	1043.00	****
DBASE III	A	COMPAT	1470.00	****
CROSSTALK	A	COMPAT	306.00	@@@
LOTUS 123	A	COMPAT	1054.00	****
WORDSTAR 2000+	A	COMPAT	927.00	@@@@
WINDOWWORD	A	COMPAT	269.00	****
READY	A	COMPAT	99.00	@@@@
THINKTANK	A	COMPAT	385.00	***
MOTOR TRADE PCK	A	COMPAT	99.00	***
PROFESSIONAL PK	A	COMPAT	99.00	****
RETAILERS PACK	A	COMPAT	99.00	****
RENTAL PACK	A	COMPAT	99.00	****
ASSET MANAGER	A	COMPAT	1170.00	****

CASH/FIN DESK	A	COMPAT	399.00	***
SYSTEM 4	A	COMPAT	645.00	***
CPA PLUS	A	COMPAT	395.00	***
OMNUS3 D'BASE	A	COMPAT	495.00	****
LOGISTIX	A	COMPAT	399.00	***
ACCOUNT RECIEVE	B	T1/2/3000	615.00	@@@
ASCENT STOCK	B	T1/2/3000	615.00	@@@
ASCENT LEDGER	B	T1/2/3000	615.00	@@@
ASCENT CASHBOOK	B	T1/2/3000	615.00	@@@
ASCENT PAYABLE	B	T1/2/3000	615.00	@@@
ASCENT TIME CST	B	T1/2/3000	615.00	@@@
ASCENT PAYROLL	B	T1/2/3000	840.00	@@@
ATTACHE REC'BLE	B	T1/2/3000	788.00	@@@@
ATTACHE LEDGER	B	T1/2/3000	788.00	@@@@
ATTACHE INV'ORY	B	T1/2/3000	788.00	@@@@@
ATTACHE INVOICE	B	T1/2/3000	788.00	@@@@@
ATTACHE PAYABLE	B	T1/2/3000	788.00	@@@@@

#### APPLICATION

Name	Source	Hardware	Price	Rating
MS-DOS UPGRD	B	T-1000	69.95	@@@
OMNITERM 2	B	RS 232 AND	249.95	@@@
DMP CUST FONT	B	1000 & DMP	49.95	@@@
PER DM 2	B	1000	149.95	@@@
SPEEDIT PROG-ED	C	COMPAT	79.00	@@@
TYPIST WP	C	COMPAT	159.00	***
SPREAD SHEET +	C	COMPAT	69.95	@@@
SUPER TEXT WP	C	COMPAT	24.99	@@@
WEBSTERS WRITER	A	COMPAT	249.00	@@@@@
WEBSTERS SPELL	A	COMPAT	89.95	@@@@@
WEBSTERS THES'S	A	COMPAT	89.95	@@@@@
TURBOCAD 1.4	A	COMPAT	399.00	****
AUTOSKETCH	A	COMPAT EGA	170.00	****
AUTOCAD STD	A	COMPAT EGA	696.00	****
DESIGNCAD	A	COMPAT	650.00	****

#### PRINTERS

Name	Source	Hardware	Price	Rating
DMP-430	B	132col LQ	1299.00	****
DMP 130	B	100cps NLQ	599.00	***
DMP 106	B	80cps	399.95	@@@
KX-P1082	A	160cps LQ	499.00	****
DWP 520	B	Daisy wheel	1899.00	@@@@@
DWP 230	B	Daisy wheel	899.00	@@@
DMP 2200	B	Business	2599.00	@@@@@
PTC 64 CONTROL	B	PRN BUFFER	349.95	@@@@@
PRINT SWITCH 2	B	2 TO 1 COMP	169.95	@@@@@

#### CABLES

Name	Source	Hardware	Price	Rating
34edge to Centr	B	T1k to prn	69.95	
34edge to Centr	B	T2k to prn	79.95	
DB25 to Centr	B	T3k to prn	79.95	
UNIVERSAL MODEM	B	T1/2/3 k	44.95	
CAS 16 SWITCH	A	2 TO 1	105.95	***

## HARDWARE

Name	Source	Hardware	Price	Rating
T-3000HL	B	80286 8M	3299.00	*****
T 3000	B	80286 8M	7499.00	*****
COLOUR MONITOR	A	COMPAT	680.00	*****
MONO MONITOR	A	COMPAT	190.00	****
MOUSE	A	COMPAT	90.00	****
80286 SPEED CRD	A	COMPAT	550.00	****
VCARD PC MODEM	A	COMPAT	149.95	****
EGA CARD	A	COMPAT	350.00	****
RS232 CARD	A	COMPAT	49.95	***
GAME PORT CARD	A	COMPAT	45.95	***
MEGAMODEM	A	COMPAT	599.00	****
SEAGATE 20M HDD	A	COMPAT	750.00	****

## CHIPS

Name	Source	Hardware	Price	Rating
80287-10 COPROC	A	AT COMPAT	799.00	****
8087-2 COPROC	A	XT COMPAT	299.00	

## BOOKS

Name	Source	Hardware	Price	Rating
DBASE III TIPS	C	PC & DBIII	37.95	*****
VISICALC APPL.	C		19.95	***
MULTIPLAN APPL.	C	PC & MP	19.95	***
PC SECRETS	C		35.95	***
MSDOS MANUAL	B	T1/3000	59.95	
TECH MANUAL	B	T1000	49.95	
PROGRAMMERS REF	B	T1000	17.95	
GWBASIC MANUAL	B	COMPAT	59.95	
T1000 GUIDE	B	T1000	29.95	
ADVANCED MSDOS	B	COMPAT	24.95	
MSDOS INTRO	B	COMPAT	17.95	
C-LIBRARY	C		36.95	
UND. COMP SCNCE	C		5.49	***
GRAPHICS PRIMER	C		45.95	****
Y'R IBM M. EASY	C		31.99	***
PC TIPS & TRAPS	C		35.95	***
YOUR IBM PC	C		39.95	***
GUIDE TO LOTUS	C		36.95	***
USING DBASE III	C		37.95	***

## ACCESSORIES

Name	Source	Hardware	Price	Rating
PAPER CLEANEDGE	C	9-1/2 x 11	25.00	
PAPER A4	C	9.5"x 11.3"	29.00	
PAPER	C	11"x15"	30.00	
PAPER BLUE RULE	C	11"x15"	27.00	
3.5" DISK	C		55.00	
3.5" HD CLEANER	C		11.95	
5.25 HD CLEANER	C		11.95	
DISK NOTCHER	C	5.25" DISKS	9.95	
5.25" DISKS	A		20.00	****

---

```
910 IF RA>4 THEN RA=4
911 RETURN
912 RA=RA-1: IF RA<-4 THEN RA=-4
913 RETURN
914 REM:ELEVATOR KEYS
915 J=5: IF BR=12 THEN J=1
916 IF K$="U" THEN FA=FA+J ELSE FA=FA-J
918 IF FA>40 THEN FA=40
920 IF FA<-40 THEN FA=-40
922 IF FA>0 THEN FL=1:RETURN
924 IF FA=0 THEN FL=2:RETURN
926 FL=3:RETURN
928 REM:WHEELS KEY
929 IF WH=10 THEN WH=12:RETURN
930 IF WH=12 THEN WH=10:RETURN
931 REM:SET VOR FREQ
932 LOCATE 15,56
933 LINE INPUT"VOR FREQ ";VX$:VO(1)=VAL(VX$)
934 LOCATE 15,56:PRINT SPC(16):RETURN
935 REM:SET VOR RADIAL
936 LOCATE 15,56
937 LINE INPUT"VOR RADIAL ";VX$:VO(3)=VAL(VX$)
938 LOCATE 15,56:PRINT SPC(14):RETURN
940 REM:FLAPS KEY
941 IF BR=10 THEN BR=12:RETURN
942 IF BR=12 THEN BR=10:RETURN
944 REM:AUTO - OBS KEY
945 F(3)=1:RETURN
946 REM:REVERSE THRUST KEY
947 IF F(7)=1 THEN TR=7
948 RETURN
950 REM:MISSSED APPROACH KEY
951 IF F(2)=1 THEN F(5)=1
952 RETURN
953 REM:FLARE KEY
954 IF F(2)=0 THEN FA=0:FL=2:RETURN
955 FA=1:FL=1:RETURN
1000 REM:SITUATION UPDATE ROUTINE
1002 TV$=TIME$:GOSUB 7050:TJ=TD-TL:TL=TD
1010 GOSUB 1100
1012 GOSUB 1130
1013 GOSUB 1145
1014 IF TR=7 THEN GOSUB 1800 ELSE GOSUB 1124
1016 GOSUB 1106
1018 GOSUB 1114
1019 IF F(2)=1 GOTO 1600
1020 GOSUB 1400
1021 GOSUB 1500
1030 IF AL<=0 THEN AF=1:GOTO 3000
1031 IF F(2)=0 GOTO 1099
1032 IF AL>0 GOTO 1068
1033 IF F(7)=1 GOTO 1090
1034 F(7)=1
1036 TY=YN
1038 TX=XN-750
1042 IF FA>1 THEN AF=2:GOTO 3000
1044 IF FA<0 THEN AF=3:GOTO 3000
1046 IF F(6)=0 GOTO 1062
1048 IF AX>100 THEN AF=4:GOTO 3000
1050 IF AX>80 THEN AF=5:GOTO 3000
1052 IF WH=10 THEN AF=6:GOTO 3000
1054 IF TX>0 THEN AF=7:GOTO 3000
1056 IF TX<-10500 THEN AF=7:GOTO 3000
1058 IF ABS(TY)>100 THEN AF=7:GOTO 3000
1060 GOTO 1099
1062 AF=8:GOTO 3000
1068 IF F(5)=1 GOTO 1082
1070 IF FA>0 GOTO 1076
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1072 IF FA<0 THEN F(6)=0
1074 GOTO 1099
1076 IF F(6)=0 THEN AX=AL:F(6)=1
1077 IF TR=6 GOTO 1080
1078 IF FA<2 THEN RC=-1800:GOTO 1099
1079 FA=2:FL=1:RC=-1800:GOTO 1099
1080 FA=1:FL=1:RC=-300:GOTO 1099
1082 IF AL<20 THEN AF=9:GOTO 3000
1084 TR=3:FA=0:FL=2
1086 AF=10:GOTO 3000
1090 IF XN<-9750 OR ABS(YN)>100 GOTO 1094
1091 IF ZS>0 GOTO 1099
1092 AF=0:GOTO 3000
1094 AF=9:GOTO 3000
1099 GOTO 1700
1100 REM:UPDATE FUEL
1102 FU=FU-(14-TR)*TJ: IF FU<0 THEN FU=0
1104 FF=FU/3120:RETURN
1106 IF F(7)=1 THEN RC=0:RETURN
1107 IF F(6)=1 THEN RETURN
1108 RC=ZS*SIN(ABS(FA/KR))*101.6
1110 IF FA<0 THEN RC=-1*RC
1112 RETURN
1114 REM:UPDATE ALTITUDE
1115 IF F(7)=1 THEN RETURN
1116 AL=AL+TJ*RC/60
1118 IF AL<0 THEN AL=0:RETURN
1120 IF AL>45000! THEN AL=45000!
1122 RETURN
1124 REM:UPDATE AIRSPEED
1125 ZS=800-100*TR
1126 ZS=ZS-2*FA
1127 IF BR=10 THEN RETURN
1128 ZS=ZS/3+20:RETURN
1130 IF F(5)=1 GOTO 1132
1131 IF F(2)=1 GOTO 1142
1132 IF RA=0 THEN RT=0:RETURN
1133 IF RA<0 THEN J=-1 ELSE J=1
1134 RA=ABS(RA): IF RA=1 THEN RT=1:GOTO 1137
1135 IF RA=2 THEN RT=10:GOTO 1137
1136 IF RA=3 THEN RT=20 ELSE RT=30
1137 RT=J*RT: RA=J*RA
1138 CC=CC+RT
1139 IF CC>360 THEN CC=CC-360:RETURN
1140 IF CC<0 THEN CC=360+CC
1141 RETURN
1142 IF RA=0 THEN RETURN
1143 IF RA<0 THEN CC=CC-1 ELSE CC=CC+1
1144 RA=0:GOTO 1139
1145 REM:UPDATE RUDDER POSITION VALUE
1146 RP=40+RA+RA:RETURN
1200 REM:COMPUTES DIST & BEARING TO A KNOWN POINT LOCATION
1202 VL=ABS(LB-LC):BL(5)=-1: IF LB>LC THEN BL(5)=1
1204 VG=ABS(GB-GC):BL(4)=1: IF GB>GC THEN BL(4)=-1
1206 LA=LC:GOSUB 2400
1208 M1=MP
1210 LA=LB:GOSUB 2400
1212 M2=MP:DM=ABS(M2-M1)
1214 IF DM=0 GOTO 1220
1216 QO=VG/(DM/60): IF QO>114.59 GOTO 1220
1218 CA=KR*ATN(QO): DR=VL*(1/COS(CA/KR)):GOTO 1222
1220 CA=90:DR=VG*COS(LC/KR)
1222 DR=DR*60: IF BL(5)=-1 GOTO 1226
1224 IF BL(4)=1 THEN CR=CA ELSE CR=360-CA
1225 RETURN
1226 IF BL(4)=1 THEN CR=180-CA ELSE CR=180+CA
1228 RETURN
1250 REM:GET WIND VECTOR FOR CURRENT ALTITUDE
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1252 I=FIX(AL/4000): IF I=>10 THEN I=10
1254 WD=WA(I,0): WV=WA(I,1)
1256 RETURN
1260 REM: SOLVES WIND TRIANGLE
1262 A=CC:L=AJ: GOSUB 1300
1264 MX=LX: MY=LY
1266 GOSUB 1250
1268 A=WD+180: IF A=>360 THEN A=A-360
1270 L=WV: GOSUB 1300
1272 MX=MX+LX: MY=MY+LY: GOSUB 1350
1274 TK=MA: GS=VZ
1276 RETURN
1300 REM: RESOLVES A VECTOR INTO RECT. COORDS
1302 IF A<=90 THEN Q=1: B=90-A: GOTO 1310
1304 IF A<=180 THEN Q=2: B=A-90: GOTO 1310
1306 IF A<=270 THEN Q=3: B=270-A: GOTO 1310
1308 Q=4: B=A-270
1310 LX=L*COS(B/KR): LY=L*SIN(B/KR)
1312 IF Q=1 THEN RETURN
1314 IF Q=2 THEN LY=-1*LY: RETURN
1316 IF Q=3 THEN LX=-1*LX: LY=-1*LY: RETURN
1318 LX=-1*LX
1320 RETURN
1350 REM: COMPOSES X, Y COMPONENTS INTO A POLAR VECTOR
1352 VZ=SQR(MX^2+MY^2)
1354 IF MX<=0 GOTO 1358
1356 IF MY<=0 THEN Q=2 ELSE Q=1
1357 GOTO 1360
1358 IF MY<=0 THEN Q=3 ELSE Q=4
1360 IF MX=0 THEN MA=90: GOTO 1366
1362 MQ=ABS(MY/MX)
1364 MA=ATN(MQ)*KR
1366 IF Q=1 THEN MA=90-MA: RETURN
1368 IF Q=2 THEN MA=90+MA: RETURN
1370 IF Q=3 THEN MA=270-MA: RETURN
1372 MA=270+MA
1374 RETURN
1400 REM: GET POSITION FOR OMEGA DISPLAY
1402 ZS(2)=ZS: FA(2)=FA: CC(2)=CC: AL(2)=AL
1404 ZS=ZS(1): FA=FA(1): CC=CC(1): AL=AL(1)
1406 IF ZS(2)<>ZS OR FA(2)<>FA GOTO 1440
1408 IF CC(2)<>CC OR AL(2)<>AL GOTO 1440
1410 F(0)=1: IF TD<TW(1)+60 GOTO 1442
1412 AJ=ZS*COS(ABS(FA)/KR)
1414 GOSUB 1260
1416 DN=GS*(TD-TW(1))/3600
1418 CN=TK: L1=LL(1): G1=GL(1)
1420 GOSUB 2000
1422 F(0)=0: TW(1)=TD: LL(1)=L2: GL(1)=G2
1424 LS(1)=L2: GS(1)=G2
1426 FOR J=4 TO 7: DP(J)=CP(J): NEXT
1428 ZS(1)=ZS(2): FA(1)=FA(2): CC(1)=CC(2): AL(1)=AL(2)
1430 ZS=ZS(2): FA=FA(2): CC=CC(2): AL=AL(2)
1432 RETURN
1440 TW(1)=TD: F(0)=0
1442 AJ=ZS*COS(ABS(FA)/KR)
1444 GOSUB 1260
1446 DN=GS*TJ/3600
1448 CN=TK: L1=LS(1): G1=GS(1)
1450 GOSUB 2000
1452 LS(1)=L2: GS(1)=G2
1454 IF F(0)=1 GOTO 1458
1456 LL(1)=L2: GL(1)=G2
1458 GOTO 1426
1500 REM: VOR ROUTINE
1502 IF VO(1)=0 GOTO 1540
1504 FOR J=0 TO 15: IF VO(1)=VF(J) GOTO 1506
1505 NEXT: GOTO 1540
1506 LC=VP(J,0): GC=VP(J,1)
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1508 LB=L2:GB=G2
1509 AR=VG(J,0):LL=VG(J,1)
1510 LO=360-LL
1512 GOSUB 1200
1514 IF DR>300 GOTO 1540
1516 IF CR>360 THEN CR=CR-360
1517 GOTO 1578
1518 VO$(1)="FROM"
1519 VO(5)=CR-VO(3):IF VO(5)<=180 GOTO 1522
1520 VO(5)=VO(5)-360:GOTO 1524
1522 IF VO(5)<-180 THEN VO(5)=VO(5)+360
1524 IF ABS(VO(5))>90 THEN I1=VO(3):GOTO 1536
1526 IF VO$(1)="FROM" THEN I=-1 ELSE I=1
1527 IF I=1 THEN VO(3)=I1
1528 VO(2)=40*I*INT(VO(5)):VO(4)=DR
1530 IF VO(2)<35 THEN VO(2)=34
1532 IF VO(2)>45 THEN VO(2)=46
1534 GOTO 1560
1536 VO$(1)=" TO ":VO(3)=VO(3)+180:IF VO(3)>360 THEN VO(3)=VO(3)-360
1538 GOTO 1519
1540 VO$(1)="OUT ":VO(4)=999.9:F(3)=0:RETURN
1546 IF DR>12 OR DR<10 THEN MK=0:GOTO 1518
1548 IF AL>4000 THEN MK=0:GOTO 1518
1550 IF F(1) =1 THEN J=9 ELSE J=2.5
1552 IF CR>AR+J OR CR<AR-J THEN MK=0:GOTO 1518
1554 F(1)=1:MK=1:GOTO 1518
1560 LOCATE 19,22:IF MK=1 THEN COLOR 0,7:PRINT" ":"COLOR 7,0:ELSE PRINT" "
1566 IF MK=0 THEN F(1)=0:RETURN
1570 IF CC>LL+1 OR CC<LL-1 THEN RETURN
1572 IF RA<>0 THEN RETURN
1574 F(1)=0:F(2)=1
1576 GOTO 1540
1578 IF F(3)=1 THEN VO(3)=CR:F(3)=0
1580 GOTO 1546
1600 REM: ILS ROUTINE
1602 ZN=AL:TH=2.82471:MK=1
1603 DW=1.69*RW*TJ:IF F(7)=1 THEN DW=0
1604 IF F(7)=1 THEN CC=LL:RA=0
1606 CJ=CC
1608 IF CJ>180 THEN CJ=360-CJ:CJ=-1*CJ
1610 HA=LO+CJ
1612 DC=360-HA:TS=1:IF HA<180 THEN DC=HA:TS=-1
1614 IF DC<0 THEN DC=-1*DC:TS=-1*TS
1616 TL$="W":IF TS=1 THEN TL$="E"
1618 DD=1.69*ZS*TJ
1620 DY=DD*SIN(DC/KR):DX=DD*COS(DC/KR)
1622 XN=XO-DX:IF TL$="E" THEN DY=-1*DY
1624 YN=YD+DY+DW
1626 LM=KR*ATN(AL/XN)
1628 BE=KR*ATN(ABS(YN)/ABS(XN)):IF BE>2.5 THEN MK=0
1630 J=(LM-TH)/.25:J=FIX(J)
1632 IF J>3 THEN J=3
1633 IF J<-3 THEN J=-3
1636 BE=BE/.25:BE=FIX(BE)
1637 IF BE<-7 THEN BE=-7
1638 IF BE>7 THEN BE=7
1639 IF YN>0 THEN BE=-1*BE
1640 IF MK=0 GOTO 1648
1642 IF XN>34960! AND XN<38000! GOTO 1648
1644 IF XN>2534 AND XN<5574 GOTO 1648
1646 MK=0
1648 GX(1)=BE:GY(1)=J
1650 GOSUB 2100
1654 LOCATE 19,22:IF MK=1 THEN COLOR 0,7:PRINT" ":"COLOR 7,0:ELSE PRINT" "
1662 XO=XN:YO=YN
1664 IF F8=1 GOTO 1676
1666 IF XN>12000 GOTO 1676
1668 F8=1
1670 FOR I=0 TO 3

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1672 LOCATE (14+I),50:PRINT RS$(I)
1674 NEXT I
1676 IF F8=0 GOTO 1699
1678 LOCATE 18,(XQ+1):PRINT" "
1680 YU=FIX(YN/16.7):XC=64+YU
1682 IF XC<49 THEN XC=49
1684 IF XC>79 THEN XC=79
1686 LOCATE 18,(XC+1):PRINT CHR$(24)
1688 XQ=XC
1699 GOTO 1031
1700 GOTO 1799
1799 GOTO 224
1800 REM: REVERSE THRUST APPLIED
1802 IF F(4)=1 GOTO 1806
1804 VO=ZS*1.152*1.47:F(4)=1
1806 V=VO-(3.23636)*TJ
1808 IF V<=0 THEN V=0
1810 VO=V
1812 ZS=V/(1.152*1.47)
1814 RETURN
2000 REM: COMPUTES NEW POSITION
2004 IF CN=0 THEN CA=0:LB(5)=1:LB(6)=1:GOTO 2014
2006 IF CN>0 AND CN<=90 THEN CA=CN:LB(5)=1:LB(6)=1:GOTO 2014
2008 IF CN>90 AND CN<=180 THEN CA=180-CN:LB(5)=-1:LB(6)=1:GOTO 2014
2010 IF CN>180 AND CN<=270 THEN CA=CN-180:LB(5)=-1:LB(6)=-1:GOTO 2014
2012 CA=360-CN:LB(5)=1:LB(6)=-1
2014 IF CA>89.5 GOTO 2034
2016 DL=DN*COS(CA/KR):DL=DL/60:LB(3)=LB(5)
2018 IF LB(3)=1 THEN L2=L1+DL:GOTO 2024
2020 L2=ABS(L1-DL)
2024 LA=L1:GOSUB 2400
2026 M1=MP
2028 LA=L2:GOSUB 2400
2030 M2=MP
2032 DM=ABS(M1-M2):DG=DM*TAN(CA/KR):GOTO 2036
2034 L2=L1:DG=DN/COS(L1/KR)
2036 DG=DG/60:LB(4)=LB(6)
2038 IF LB(4)=-1 GOTO 2046
2040 G2=ABS(G1-DG)
2044 GOTO 2050
2046 G2=G1+DG
2050 CP(4)=FIX(L2):CP(5)=(L2-CP(4))*60
2052 CP(6)=FIX(G2):CP(7)=(G2-CP(6))*60
2054 RETURN
2100 REM: PLOT GLIDE SLOPE CROSSHAIRS
2101 IF X0<=750 THEN RETURN
2102 X0=8+GX(0):X1=8+GX(1):Y0=18+GY(0):Y1=18+GY(1)
2104 FOR Y=15 TO 21:LOCATE (Y+1),(X0+1):PRINT" ":NEXT
2106 LOCATE (Y0+1),2:PRINT STRING$(15,32)
2108 FOR Y=15 TO 21:LOCATE (Y+1),(X1+1):PRINT CHR$(197):NEXT
2110 LOCATE (Y1+1),2:PRINT STRING$(15,197)
2112 LOCATE (Y1+1),(X1+1):PRINT CHR$(43)
2114 LOCATE 19,9:PRINT"O"
2116 GX(0)=GX(1):GY(0)=GY(1)
2118 RETURN
2400 REM: COMPUTES MERIDIONAL PARTS, MP
2404 KM(0)=7915.704468#
2406 KM(1)=23.268932#
2408 KM(2)=.0525
2410 KM(3)=.000213
2414 IF LA=0 THEN LA=0+1/60
2416 IF LA>(89+59/60) THEN LA=89+59/60
2418 S1=SIN(LA/KR)
2420 S2=S1*S1:S3=S1*S2
2422 TM(0)=TAN((45+LA/2)/KR)
2424 TM(0)=KM(0)*LOG(TM(0))/LOG(10)
2426 TM(1)=KM(1)*S1
2428 TM(2)=KM(2)*S3

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2430 TM(3)=KM(3)*S2*S3
2432 MP=TM(0)-TM(1)-TM(2)-TM(3)
2436 RETURN
3000 REM: ABORT ROUTINES
3002 M$(1)="----- A CRASH HAS OCCURED -----"
3004 M$(2)="YOU ACCIDENTLY STALLED THE AIRCRAFT DURING FINAL APPROACH."
3006 M$(3)="THE STALL OCCURRED AT AN ALTITUDE OF"
3008 M$(4)="THE AIRCRAFT STRUCK THE GROUND IN A NOSE-HIGH ATTITUDE."
3010 M$(5)="THE IMPACT RUPTURED THE TAIL SECTION OF THE FUSELAGE."
3012 M$(6)="---- LOCATION OF CRASH ----"
3013 M$(7)="---- LANDING POSITION ----"
3016 M$(8)=" PITCH ANGLE="
3018 M$(9)=" AIRSPEED="
3020 M$(10)="YOU FLARED AT TOO HIGH AN ALTITUDE DURING FINAL APPROACH."
3022 M$(11)="THE RESULTING STALL OCCURED AT AN ALTITUDE OF"
3024 M$(12)="THE IMPACT RUPTURED THE "
3026 M$(13)="YOU FORGOT TO LOWER THE LANDING GEAR."
3028 M$(14)="YOU FAILED TO TOUCH DOWN INSIDE THE RUNWAY."
3030 M$(15)="----- AN IMPROPER LANDING WAS MADE -----"
3032 M$(16)="NO DAMAGE OR INJURIES OCCURRED.
3033 RL=0: IF TX>100 THEN RL=1
3034 RW=0: IF ABS(TY)>100 THEN RW=1
3040 NS(2)="FEET INSIDE OF RUNWAY"
3041 IF TX=>0 THEN NS(2)="FEET SHORT OF RUNWAY"
3042 NS(3)="FEET TO LEFT OF RUNWAY CENTERLINE"
3043 IF TY=>0 THEN NS(3)="FEET TO RIGHT OF RUNWAY CENTERLINE"
3044 RX=FIX(TX): RX=ABS(RX)
3045 RY=FIX(TY): RY=ABS(RY)
3050 IF AF=0 GOTO 3600
3055 ZS=INT(AX): FA=INT(FA): ZS=INT(ZS)
3060 ON AF GOTO 3100,3150,3200,3250,3300,3350,3400,3450,3500,3550
3100 GOSUB 3700
3101 YP=4: XP=55: F$="##,###": V1=AL: GOSUB 9000
3102 LOCATE 16,1:PRINT M$(1)
3104 PRINT"YOU FLEW INTO THE GROUND."
3106 PRINT"THE INSTRUMENT READINGS AT TIME OF THE CRASH ARE SHOWN AS ABOVE."
3108 END
3150 CLS
3152 PRINT M$(1)
3154 PRINT M$(2)
3156 PRINT M$(3);AX;"FEET."
3158 PRINT M$(4)
3160 PRINT M$(5)
3162 NS(1)=M$(6)
3164 GOSUB 3800
3166 END
3200 CLS
3202 PRINT M$(1)
3204 PRINT"YOU FLEW INTO THE GROUND DURING FINAL APPROACH."
3206 PRINT"AT THE TIME OF THE CRASH THE AIRCRAFT PROFILE WAS AS FOLLOWS :"
3208 PRINT M$(8);FA;"DEGREES"
3210 PRINT M$(9);ZS
3212 NS(1)=M$(6)
3214 GOSUB 3800
3216 END
3250 CLS
3252 PRINT M$(1)
3254 PRINT M$(10)
3256 PRINT M$(11);AX;"FEET."
3258 PRINT M$(12)+"FUSELAGE."
3260 NS(1)=M$(6)
3262 GOSUB 3800
3264 END
3300 CLS
3302 IF WH=10 THEN PRINT M$(1)
3304 IF WH=12 THEN PRINT"----- A MINOR CRASH HAS OCCURRED -----"
3306 PRINT M$(10)
3308 PRINT M$(11);AX;"FEET."

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3310 IF WH=10 THEN PRINT M$(13)
3312 IF WH=10 THEN PRINT M$(12)+"FUSELAGE."
3314 IF WH=12 THEN PRINT"THE IMPACT DAMAGED THE LANDING GEAR."
3316 IF WH=12 THEN PRINT"ALL THE PASSENGERS HAVE BEEN SAFELY EVACUATED."
3318 N$(1)=M$(6)
3320 GOSUB 3800
3322 END
3350 CLS
3352 PRINT M$(1)
3354 PRINT M$(13)
3356 PRINT"THE AIRCRAFT LANDED ON ITS BELLY, CAUSING MODERATE DAMAGE."
3358 PRINT"ALL THE PASSENGERS HAVE BEEN SAFELY EVACUATED."
3360 N$(1)=M$(6)
3362 GOSUB 3800
3364 END
3400 CLS
3402 PRINT M$(15)
3404 PRINT M$(14)
3406 N$(1)=M$(7)
3408 GOSUB 3800
3410 END
3450 CLS
3452 PRINT M$(15)
3454 PRINT"YOU FAILED TO EXECUTE A FLARE PRIOR TO TOUCHING DOWN."
3456 PRINT"THIS IS A VIOLATION OF COMPANY PROCEDURES."
3458 PRINT M$(16)
3460 N$(1)=M$(7)
3462 GOSUB 3800
3464 END
3500 CLS
3502 PRINT M$(15)
3504 PRINT"YOU ROLLED OFF THE RUNWAY AFTER TOUCHING DOWN."
3506 PRINT M$(16)
3508 N$(1)=M$(7)
3512 GOSUB 3800
3513 PRINT
3514 IF XN>-9750 THEN PRINT"YOU ROLLED PAST FAR END OF RUNWAY"
3516 IF ABS(YN)>100 THEN PRINT"YOU ROLLED THROUGH RUNWAY SIDE BORDERS"
3518 END
3550 CLS
3552 PRINT"----- YOUR MISSED APPROACH SIGNAL IS ACKNOWLEDGED -----"
3554 PRINT"YOU HAVE FOLLOWED PROPER PROCEDURES."
3556 END
3600 CLS
3602 PRINT"----- YOU HAVE SUCCESSFULLY COMPLETED THE FLIGHT -----"
3604 PRINT"ALL PROCEDURES WERE PROPERLY EXECUTED."
3606 N$(1)=M$(7)
3610 PRINT"CONGRATULATIONS ON A SUCCESSFUL FLIGHT."
3612 GOSUB 3800
3613 PRINT
3614 XN=ABS(XN); JN=FIX(XN+750)
3615 YN=ABS(YN); YN=FIX(YN)
3616 PRINT"YOUR AIRCRAFT CAME TO REST AT THE FOLLOWING POSITION:"
3617 PRINT"      ";JN;" FEET INSIDE THE RUNWAY"
3618 PRINT"      ";YN;" FEET FROM RUNWAY CENTERLINE"
3620 END
3700 REM: SUBROUTINE TO CLEAR LOWER PART OF DISPLAY
3702 FOR I=9 TO 23
3704 LOCATE (I+1),1:PRINT SPC(79);
3706 NEXT I
3708 RETURN
3800 REM: LANDING STATISTICS
3802 PRINT
3804 PRINT SPACE$(26);N$(1)
3806 PRINT
3808 IF RL=0 THEN PRINT RX;N$(2)
3809 IF RL=1 THEN COLOR 0,7:PRINT RX;N$(2):COLOR 7,0
3810 PRINT
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3812 IF RW=0 THEN PRINT RY;NS(3)
3813 IF RW=1 THEN COLOR 0,7:PRINT RY;NS(3):COLOR 7,0
3814 PRINT
3816 PRINT"--- SIZE OF RUNWAY IS 10,500 FEET X 200 FEET ---"
3818 RETURN
5085 REM: TIME DELAY PAD
5090 FOR I=1 TO TQ
5095 NEXT I
5099 RETURN
7050 REM: CONVERT RTC TO TIME OF DAY IN SECONDS ABSOLUTE
7055 J=7
7060 FOR I=0 TO 2
7065 TC$(I)=MID$(TV$,J,2)
7070 J=J-3
7075 TC(I)=VAL(TC$(I))
7080 TD=(3600*TC(2))+(60*TC(1))+TC(0)
7085 NEXT I
7090 RETURN
9000 REM: PLOTS VARIABLE ON REVERSE BACKGROUND
9005 COLOR 0,7:LOCATE (YP+1),(XP+1)
9010 PRINT USING F$;V1;
9015 COLOR 7,0
9020 RETURN
9999 END
10000 REM: BEGIN TAKEOFF MODULE HERE, EH
10020 CLS:CLEAR 1000:RANDOMIZE 57.2958
10025 KR=57.2958
10030 DIM XM(13),WM(13)
10031 DIM PS(31)
10035 DATA 37,35,32,30,27,25,22,20,17,15,12,10,7,5
10040 DATA 6,11,16,21,26,31,36,41,46,51,56,61,66,71
10041 FOR I=0 TO 28:READ PS(I):NEXT
10045 FOR I=0 TO 13:READ XM(I):NEXT
10050 FOR I=0 TO 13:READ WM(I):NEXT
10055 M$(1)=" ";M$(2)=" ";M$(3)="
10060 DIM XE(13),WE(13)
10065 K1=29:K2=23
10070 FOR I=0 TO 13
10075 XE(I)=K1:WE(I)=K2
10080 K1=K1-2:K2=K2+4
10085 NEXT
10090 IO=40
10095 RN=RND(0)
10100 RS=1:IF RN>.5 THEN RS=-1
10105 W1=75:IF RS=-1 THEN W1=255
10110 W2=RND(20):W3=RS*W2
10115 DIM XL(14),XR(14)
10120 J=31:K=49
10125 FOR I=0 TO 14
10130 XL(I)=J:XR(I)=K
10135 J=J-2:K=K+2
10140 NEXT
10145 DATA FUEL,LBS,%,VHF,MHZ,THRUST,MAX, IDLE, REV
10150 DATA PITCH," +"," -",DEG,FLAPS,UP,DWN,WHEELS,UP,MID,DOWN
10155 DATA COMPASS,AIRSPEED,KTS," VERT",SPEED,FPM
10160 DATA ALTITUDE,FEET,CLOCK,BRAKE,SET,REL
10170 FOR I=0 TO 31:READ PS(I):NEXT
10175 DIM S$(25)
10180 FOR I=1 TO 25:S$(I)=SPACES$(I):NEXT
10185 FOR I=0 TO 9:F(I)=0:NEXT
10190 REM: INIT VARIABLES FOR TAKEOFF MODE
10195 FU=200000!:FP=0:CC=75:ZS=0:RC=0:AL=0
10200 MZ=107:TR=6:FL=2:FA=0:WH=13:IX=40:HY=9:BR=11:BK=11
10205 AB=0
10215 LOCATE 9,18:PRINT"AIR CANADA 312      CLEARED AS FILED"
10217 PRINT:PRINT
10218 PRINT"          SURFACE WINDS VARIABLE, GUSTING TO 15."
10219 PRINT"          MINIMUM CEILING CONDITIONS ARE IN EFFECT."

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10230 PRINT" SKY CONDITIONS AT 20,000 SCATTERED."
10235 PRINT" AT 30,000 BROKEN."
10240 PRINT:PRINT
10245 PRINT"UPON TAKEOFF, MAINTAIN HEADING 075 TO 3000, THEN PROCEED AS FILED."
10248 PRINT:PRINT:PRINT" STANDBY FOR TAKEOFF CLEARANCE"
10255 TQ=7000:GOSUB 11535
10260 CLS
10265 LOCATE 11,18:PRINT"AIR CANADA 312":PRINT:PRINT
10270 PRINT"YOU ARE CLEARED FOR TAKEOFF AT 0800 HOURS"
10275 TQ=3000:GOSUB 11535
10280 CLS
10285 TIME$="07:59:00":KEY OFF:CLS
10290 TV$=TIME$:GOSUB 11555:TL=TD
10295 GOSUB 10330
10300 GOSUB 10410
10305 GOSUB 10480
10310 GOSUB 10615
10315 K$=INKEY$:IF LEN(K$)=0 GOTO 10325
10320 GOSUB 10790
10325 GOTO 10945
10330 REM:DISPLAY PANEL (HEADERS ONLY)
10335 LOCATE 1,4:PRINT P$(0);S$(4);P$(5);S$(3);P$(9);S$(3);S$(6);S$(3);P$(20)
10340 LOCATE 11,60:PRINT P$(13);S$(3);P$(16);S$(2);P$(29)
10345 LOCATE 12,62:PRINT P$(14);S$(6);P$(14);S$(6);P$(30)
10350 LOCATE 14,62:PRINT P$(15);S$(5);P$(15);S$(5);P$(31)
10352 IF F(9)=1 THEN RETURN
10355 LOCATE 2,14:PRINT P$(6);S$(6);P$(10);S$(6)
10360 LOCATE 2,69:PRINT P$(28)
10365 LOCATE 3,2:PRINT P$(1);S$(4);P$(2);S$(21);S$(3);S$(13);P$(23)
10370 LOCATE 4,23:PRINT P$(11);S$(13);P$(21);S$(2);P$(24);S$(2);P$(26)
10375 LOCATE 5,1:PRINT P$(3)
10380 LOCATE 6,40:PRINT P$(22);S$(6);P$(25);S$(5);P$(27)
10385 LOCATE 7,1:PRINT P$(4);S$(10);P$(7);S$(3);P$(12);S$(7)
10390 LOCATE 8,14:PRINT P$(8)
10395 FOR Y=1 TO 7:LOCATE (Y+1),13:PRINT CHR$(195):NEXT
10400 FOR Y=1 TO 3:LOCATE (Y+1),22:PRINT CHR$(195):NEXT
10405 RETURN
10410 REM:DISPLAY HORIZONTAL LINE
10415 IF F(9)=0 GOTO 10430
10420 LOCATE 10,1:PRINT SPACE$(80);
10425 IF HY=20 GOTO 10440
10430 LOCATE (HY+1),1:PRINT STRING$(80," ")
10435 RETURN
10440 OH=9:HY=10
10445 FOR I=HY TO 22
10450 LOCATE (OH+1),1:PRINT SPACE$(80);
10455 LOCATE (I+1),1:PRINT STRING$(80," ");
10460 OH=I
10465 NEXT I
10470 LOCATE 24,(IO+1):PRINT" ";
10475 RETURN
10480 REM:DISPLAY RUNWAY
10485 IF F(4)=1 GOTO 10525
10490 S=10:X=29
10495 FOR Y=10 TO 22
10500 LOCATE (Y+1),(X+1):PRINT ".":SPACE$(S);" ";SPACE$(S);".";
10505 X=X-2:S=S+2
10510 NEXT
10515 S$=S$(13)
10520 RETURN
10525 REM:PRINTS RUNWAY GRAPHICS
10530 IF N>3 GOTO 10600
10535 LOCATE (OY+1),(OX+1):PRINT SPACE$(WM);
10540 LOCATE (NY+1),(NX+1):PRINT MK$;
10545 OY-NY:OX-NX
10550 WM-FW
10555 RETURN
10560 REM:ENTRY WHEN SHIP IN FINAL ZONE
```

---

```

10565 LOCATE (OY+1), (OX+1): PRINT SPACES$(WM): IF F(9)=1 THEN RETURN
10570 FOR I=10 TO NY-1
10575 LOCATE (I+1), (XE(J)+1): PRINT SPACES$(WE(J))
10580 NEXT I
10585 IF N>4 THEN RETURN
10590 LOCATE (NY+1), (NX+1): PRINT MK$;
10595 RETURN
10600 IF F(2)=1 GOTO 10560 ELSE F(2)=1
10605 FOR I=10 TO 13: LOCATE (I+1), 60: PRINT SPACES$(21): NEXT
10610 GOTO 10560
10615 REM: DISPLAY INSTRUMENT READINGS
10618 LOCATE 1, 67: COLOR 0, 7: PRINT TIME$: COLOR 7, 0
10620 YP=1: XP=0: F$="# #####": V1=FU: GOSUB 11600
10625 YP=1: XP=7: F$="# ##": V1=FP: GOSUB 11600
10630 YP=1: XP=39: V1=CC: GOSUB 11600
10635 YP=4: XP=39: V1=ZS: GOSUB 11600
10640 YP=4: XP=46: F$="# #####": V1=RC: GOSUB 11600
10645 YP=4: XP=55: F$="# #, # ##": V1=AL: GOSUB 11600
10650 YP=5: XP=0: F$="# ##": V1=MZ: GOSUB 11600
10655 REM: DISPLAY THRUST
10660 FOR I=1 TO 7
10665 LOCATE (I+1), 12: PRINT" ";CHR$(195)
10670 NEXT
10675 LOCATE (TR+1), 12: PRINT">""
10680 REM: DISPLAY PITCH
10685 FOR I=1 TO 3: LOCATE (I+1), 21: PRINT" ";CHR$(195): NEXT
10690 LOCATE (FL+1), 21: PRINT">""
10695 F$="+###"
10700 YP=5: XP=20: V1=FA: GOSUB 11600
10705 REM: DISPLAY FLAPS
10710 IF F(2)=1 GOTO 10760
10715 FOR I=11 TO 13: LOCATE (I+1), 60: PRINT" ";CHR$(195): NEXT
10720 LOCATE (BR+1), 60: PRINT">""
10725 REM: WHEELS
10730 FOR I=11 TO 13: LOCATE (I+1), 68: PRINT" ";CHR$(195): NEXT
10735 LOCATE (WH+1), 68: PRINT">""
10740 REM: BRAKES
10745 FOR I=11 TO 13: LOCATE (I+1), 76: PRINT" ";CHR$(195): NEXT
10750 LOCATE (BK+1), 76: PRINT">""
10760 REM: DISPLAY RUNWAY ALIGNMENT INDEX
10765 IF F(9)=1 THEN RETURN
10770 LOCATE 24, (IO+1): PRINT" ";
10775 LOCATE 24, (IX+1): PRINT CHR$(24);
10780 IO=IX
10785 RETURN
10790 REM: PO:LMKEY SUBROUTINE
10795 IF K$="F" THEN KK=1: GOTO 10820
10800 IF K$=,,," OR K$=".," THEN KK=2: GOTO 10820
10805 IF K$="B" THEN KK=3: GOTO 10820
10810 IF K$="U" OR K$="D" THEN KK=4: GOTO 10820
10815 IF K$="L" THEN KK=5: GOTO 10820
10817 IF K$="W" THEN KK=6: GOTO 10820
10818 IF K$="S" THEN KK=7: GOTO 10820
10819 GOTO 10825
10820 ON KK GOSUB 10830, 10845, 10865, 10880, 10925, 10941, 10826
10825 RETURN
10826 REM: THRUST KEY (DECREASE)
10827 IF F(7)=1 AND BR=11 THEN TR=4
10829 RETURN
10830 REM: THRUST KEY (INCREASE)
10831 IF F(7)=1 THEN RETURN
10835 F(1)=1: TR=1: RETURN
10845 REM: RUDDER KEYS
10846 IF F(7)=1 THEN RETURN
10850 IF ZS<=50 THEN RETURN
10855 IF K$=,,," THEN CC=CC-1 ELSE CC=CC+1
10860 RETURN
10865 REM: BRAKES

```

```
10870 IF F(0)=1 THEN RETURN
10875 .F(0)=1: BK=13: RETURN
10880 REM: PITCH
10881 IF F(7)=1 THEN RETURN
10885 IF ZS<=50 THEN RETURN
10890 FD=-10: IF K$="U" THEN FD=10
10895 FA=FA+FD
10900 IF FA>60 THEN FA=60
10905 IF FA<-60 THEN FA=-60
10910 IF FA>0 THEN FL=1: RETURN
10915 IF FA=0 THEN FL=2: RETURN
10920 FL=3: RETURN
10925 REM: FLAPS
10926 IF F(7)=1 AND WH=11 THEN BR=11: RETURN
10930 IF F(3)=1 THEN RETURN
10935 IF F(3)=0 THEN F(3)=1: BR=13: RETURN
10940 RETURN
10941 REM: WHEELS
10942 IF F(7)=1 THEN WH=11
10944 RETURN
10945 REM: SITUATION UPDATE ROUTINE
10950 TV$=TIME$: GOSUB 11555: TJ=TD-TL: TL=TD
10955 IF F(9)=1 GOTO 12000
10960 IF F(0)=1 GOTO 10970
10965 GOSUB 11130: GOTO 10310
10970 IF F(4)=1 GOTO 10990
10975 F(4)=1
10980 XX=0: YY=0
10985 TD=TD: VO=0: N=1: OY=23: OX=5: WM=71
10990 REM:
10995 A=(118-18*TR)*.04028
11000 GOSUB 11190
11005 IF AL>0 GOTO 11060
11010 IF YY>10500 OR ABS(XX)>100 GOTO 11390
11015 IF FA<=0 GOTO 11100
11020 IF ZS<150 GOTO 11385
11025 IF FA>10 GOTO 11385
11030 IF F(3)=0 GOTO 11100
11035 AL=25
11040 GOSUB 11130
11045 GOSUB 11150
11050 GOSUB 11300
11055 GOTO 10305
11060 F(9)=1
11065 GOSUB 11130
11070 GOSUB 11150
11075 GOSUB 11170
11080 FOR I=10 TO 22: LOCATE (I+1), 1: PRINT SPACE$(80); : NEXT
11085 HY=20
11090 GOSUB 10410
11095 GOTO 11115
11100 GOSUB 11130
11105 GOSUB 11300
11110 GOTO 10305
11115 REM: NOW DO DEPARTURE PROCEDURES
11120 GOTO 10310
11130 REM: UPDATE FUEL
11135 FU=FU-40*TJ
11140 FF=FU/3120
11145 RETURN
11150 REM: UPDATE RATE OF CLIMB
11155 RC=ZS*SIN(ABS(FA/57.3))*1.693*60
11160 IF FA<0 THEN RC=-1*RC
11165 RETURN
11170 REM: UPDATE ALT
11175 AL=AL+TJ*RC/60
11180 IF AL<=0 THEN AL=0
11185 RETURN
```

```
11190 REM: EQUATIONS OF MOTION
11195 T=TJ
11200 V=VO+A*T
11205 VB=(V+VO)/2: VO=V
11210 S=VB*T
11215 IF TD<(TX+18) GOTO 11235
11220 TX=TD
11225 WB=RS*RND(2)
11230 CC=CC+WB
11235 DA=(CC-75)/57.3
11240 DY=S*COS(ABS(DA))
11245 DX=S*SIN(ABS(DA))
11250 IF DA<0 THEN DX=-1*DX
11255 YY=YY+DY
11260 XX=XX+DX
11265 ZS=V/1.69278
11270 IF ZS>20 THEN ZS=ZS+WS
11275 IX=40+FIX(XX*7/20): IF IX>79 THEN IX=79
11280 IF IX<0 THEN IX=0
11285 ZP=FIX(YY-2500*(N-1))
11290 IF ZP>2500 THEN N=N+1: GOTO 11285
11295 RETURN
11300 REM: VARIABLES FOR RUNWAY GRAPHICS
11305 MP=FIX(10+(13*ZP)/2500)
11310 IF N>3 GOTO 11350
11315 NY=MP
11320 J=NY-10
11325 NX=XM(J)
11330 FW=WM(J)
11335 S$=SPACE$(J)
11340 MK$=M$(N)+S$(J)+" "+S$(J)+" "+S$(J)+" "+S$(J)+" "+S$(J)+" "
11345 RETURN
11350 REM: IN ZONE 4-MARKER IS RUNWAY EDGE
11355 NY=MP
11360 J=NY-10
11365 NX=XB(J)
11370 IF N>4 THEN RETURN
11375 MK$=STRINGS(WE(J), " ")
11380 RETURN
11385 AB=1: GOTO 11415
11390 AB=2: IF YY<10500 GOTO 11415
11395 FOR I=10 TO 22
11400 LOCATE (I+1), 1: PRINT SPACE$(80);
11405 NEXT I
11410 GOTO 11415
11415 REM: ABORT
11420 FOR I=10 TO 22
11425 LOCATE (I+1), 1: COLOR 0, 7: PRINT SPACE$(80);
11430 NEXT I
11435 LOCATE 11, 30: PRINT "*** TAKEOFF FAILED ***": PRINT: PRINT
11440 ON AB GOSUB 11455, 11480
11445 LOCATE 20, 35: COLOR 7, 0: PRINT"END OF PROGRAM";
11450 END
11455 PRINT"YOU PULLED BACK ON THE STICK AT TOO SLOW A SPEED, OR YOU"
11460 PRINT"PULLED BACK THE STICK TOO FAR WHEN AT PROPER SPEED."
11465 PRINT"AS A RESULT, THE TAIL OF THE FUSELAGE SCRAPED THE RUNWAY"
11470 PRINT"AND THE AIRCRAFT SPUN OUT OF CONTROL."
11475 RETURN
11480 IF YY>10500 GOTO 11505
11485 PRINT"YOU FAILED TO STAY WITHIN THE RUNWAY BOUNDARIES."
11490 PRINT"AS A RESULT, YOU VEERED OFF THE RUNWAY AND COLLIDED WITH"
11495 PRINT" THE RUNWAY LIGHTS."
11500 RETURN
11505 PRINT" YOU RAN OUT OF RUNWAY. AS A RESULT, YOU ROLLED INTO THE"
11510 PRINT" MARSHLANDS LOCATED"; FIX(YY)-10500; "FEET PAST THE END OF THE RUNWAY."
11515 IF F(3)=1 THEN RETURN
11520 PRINT: PRINT" YOU FORGOT TO LOWER THE FLAPS."
```

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11525 PRINT" AS A RESULT, THE AIRCRAFT COULD NOT DEVELOP SUFFICIENT LIFT."
11530 RETURN
11535 REM: TIME DELAY PAD
11540 FOR I=1 TO TQ
11545 NEXT I
11550 RETURN
11555 REM: CONVERT RTC TO TIME OF DAY IN SECONDS, ABSOLUTELY
11560 J=7
11565 FOR I=0 TO 2
11570 TC$(I)=MID$(TV$,J,2)
11575 J=J-3
11580 TC(I)=VAL(TC$(I))
11585 TD=(3600*TC(2))+(60*TC(1))+TC(0)
11590 NEXT I
11595 RETURN
11600 REM: PLOTS VARIABLE ON REVERSE BACKGROUND
11605 COLOR 0,7:LOCATE (YP+1),(XP+2)
11610 PRINT USING F$;V1;
11615 COLOR 7,0
11620 RETURN
12000 REM:DEPARTURE ROUTINE
12010 IF F(7)=1 GOTO 12025 ELSE F(7)=1
12015 GOSUB 10340
12020 F(2)=0
12025 IF WH<>11 GOTO 12040 ELSE ZS=ZS+5
12030 IF BR<>11 GOTO 12040 ELSE ZS=ZS+5
12035 IF TR=4 AND AL>1800 GOTO 24 ELSE GOTO 12090
12040 IF AL<1200 GOTO 12090
12042 LOCATE 13,1:PRINT"*****8DLIGHT ABORTED *****"
12044 PRINT:PRINT
12046 PRINT"YOU FAILED TO PERFORM CRUCIAL TRIM MANOUEVERS FOLLOWING LIFTOFF."
12048 PRINT" THE PROPER TRIM SEQUENCE, WHICH MUST BE COMPLETED BELOW 1200 FEET,
IS AS FOLLOWS:"
12050 PRINT" 1-RAISE LANDING GEAR"
12054 PRINT" 3-REDUCE THRUST"
12055 PRINT" 2-RETRACT FLAPS"
12056 PRINT
12058 PRINT"----- END OF PROGRAM -----"
12060 END
12090 GOSUB 11130
12092 GOSUB 11150
12094 GOSUB 11170
12099 GOTO 10310
13000 REM:END OF LISTING

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continued from p16



The contents are examined by the operating system bit by bit to determine how it will

configure the screen. The bit names are :

0	Background Blue
1	" Green
2	" Red
3	" Intensity
4	Foreground Intensity
5	Color Select

Setting one or more of these bits will have a corresponding effect on the colors. The effects may not be so apparent on mono screens, just a difference in intensity.

As for the file called "INPUT.COM" this file is used by the batch files to get a response for a menu selection or question.

Unless you are using batch files it is of very limited use. Although it does not appear to do anything, it does work.

A detailed explanation of its operation can be found in the FEB 86 CoCo.

Your problem in "INTRO.BAS" is a little easier to fix.

When not run from a batch file the BASIC interpreter uses line 25 on the screen to show the key designation.

This means that you must put a KEY OFF command at the start of the program.

If the program is started from a batch file it does not put the keys on the screen so line 25 is free to be used.

To stop going back to DOS when the program is finished put END in place of SYSTEM.

I hope these ideas will help you enjoy your GOLDDISK's and do not hesitate to call if there are any more questions.

Bruce and Daryl

Thanks very much to Daryl for helping me with this month's OH-ZONE.

# TOMCAT

Attention all pilots. You are now on the Top Gun Pilot Test program. Your mission is to destroy as many enemy targets as you can. We realise this is not going to be easy but as you are equipped with the best fighter in the air you should be able to make "ACE".

Your fighter is equipped with missiles but you may only use the high speed machine gun on your opponents. That's the way we did it in the Big One.

Missiles may be used against the heat seeking missiles fired at you by the enemy. You have only six missiles but as they are very accurate, six will be adequate.

For those of you not familiar with this type of aircraft I will highlight some of the features.

The fuel capacity is 10,000 litres with a consumption rate of 10 litres per second.

There is twelve AIM63 smart missiles in two pods, one either side of the subframe. Fire control is F10, though this can be changed before take off to your choice of any function key in line 760.

Main armaments are the L-14G 25mm machine guns. At a rate of fire of 100 rounds per second and a magazine capacity of 3000 rounds you must be careful not to expend ammo needlessly. The ammunition for this gun is expensive so don't waste it.

This is the end of the briefing, you must now carry out your mission. Remember, this is not a game but practice for the big one so GOOD LUCK.

## The Listing:

```
1 GOTO 10
2 SAVE"Tomcat.BAS",A
3 END
10 GOTO 1590
20 *****
30 **** move plane ****
40 ****
50 FPX=FPX+INT(RND*5)-INT(RND*5)
60 PPY=PPY+INT(RND*5)-INT(RND*5)
70 IF PPX>250 THEN PPX=250
80 IF PPX>290 THEN PPX=290
90 IF PPX<10 THEN PPX=10
100 IF PPY>150 THEN PPY=150
110 IF PPY<10 THEN PPY=15
120 RETURN
130 CLS:gosub 1800:GOTO 660
140 *****
150 **** draw target ****
160 *****
170 KEY(11) STOP:KEY(12) STOP:KEY(13) STOP :KEY(14) STOP
180 PUT(PPX,PPY),V,XOR
190 PUT(PFX,PPY),V,XOR
200 RETURN
210 *****
220 **** plane up ****
230 *****
240 PPY=PPY+1:RETURN :'target down
250 *****
260 **** plane left ****
270 *****
280 PFX=PFX+1:RETURN:'target right
290 *****
300 **** plane right ***
310 *****
320 PFX=PFX-1:RETURN :'target left
330 *****
340 **** plane down ***
350 *****
```



by Bruce Kerr

```
360 PPY=PPY-1:RETURN :'target up
370 '*****
380 **** fire gun ****
390 '*****
400 IF RNDS<0 THEN LOCATE 25,30:PRINT "empty mag!";:RETURN
410 HIT=0
420 FOR L=1 TO 5:SOUND 80,.5:NEXT
430 LINE(20,130)-(160,60),2,,&HCCCC
440 LINE(300,130)-(160,60),2,,&HCCCC
450 LINE(20,130)-(160,60),0
460 LINE(300,130)-(160,60),0
470 IF PPX>135 AND PPX<155 AND PPY>45 AND PPY<60 THEN HIT=1:GOSUB 910
480 LOCATE 25,30:PRINT USING "#####";RNDS
490 RNDS=RNDS-100
500 RETURN
510 '*****
520 **** smart missile ****
530 '*****
540 IF EMF=0 THEN RETURN
550 IF NSM=<0 THEN LOCATE 25,22:PRINT "empty!";:RETURN
560 LOCATE 25,25:PRINT STRINGS(NSM,"X")+STRINGS(6-NSM," ");
570 IF EMF=0 THEN RETURN
580 LINE (160,170)-(EX,EY),3
590 SOUND 300,1:SOUND 400,1:SOUND 500,1
600 DRAW "c3u2c2g3c3h2"
610 DRAW "c0f2e3d2"
620 SOUND 500,1:SOUND 400,1:SOUND 300,1
630 LINE (160,170)-(EX,EY),0
640 EMF=0: NSM=NSM-1
650 RETURN
660 '*****
670 **** control keys ****
680 '*****
690 FU=FU-10
700 IF EM=<0 THEN EM=INT(RND*300)+1
710 ON KEY(11) GOSUB 210
720 ON KEY(12) GOSUB 250:'left
730 ON KEY(13) GOSUB 290:'right
740 ON KEY(14) GOSUB 330:'down
750 ON KEY(9) GOSUB 370:'fire gun
760 ON KEY(10) GOSUB 510:'fire missile
770 KEY(11) ON : KEY(12) ON : KEY(13) ON
780 KEY(14) ON : KEY(9) ON : KEY(10) ON
790 IF HIT=1 THEN GOSUB 1100
800 GOSUB 50
810 IF PPX<10 THEN PPX=10
820 IF PPX>290 THEN PPX=290
830 IF PPY<8 THEN PPY=8
840 IF PPY>150 THEN PPY=150
850 GOSUB 140
860 LOCATE 25,10:PRINT"Fuel ";FU;
870 IF FU=<0 THEN FOR L=1 TO 1000:NEXT:GOTO 1180
880 EM=EM-1:IF EM=<0 THEN GOSUB 1310
890 GOSUB 1360
900 GOTO 660
910 '*****
920 **** target explosion ****
930 '*****
940 PUT (140,45),E,XOR
950 PLAY "132mbn34n23n78n56n34n23n12n34n56n34n67n56"
960 FOR L=1 TO 20:NEXT
970 PUT (140,45),F,XOR
980 PUT (140,45),E,XOR
990 FOR L=1 TO 20:NEXT
1000 PUT (140,45),F,XOR
1010 PUT (110,40),G,XOR
1020 FOR L=1 TO 20:NEXT
1030 PUT (100,20),H,XOR
1040 FOR L=1 TO 20:NEXT
```

```
1050 PUT (110,40),G,XOR
1060 FOR L=1 TO 20:NEXT
1070 PUT (100,20),H,XOR
1080 FOR L=1 TO 20:NEXT
1090 RETURN
1100 '*****score & restart ****
1110 '***** score & restart ***
1120 '*****score & restart ****
1130 TK=TK+1
1140 LOCATE 25,1:PRINT "Kills";TK;
1150 PPX=INT(RND*300+10):PPY=INT(RND*150+10)
1160 HIT=0
1170 RETURN
1180 '*****score & restart ****
1190 '**** end & hiscore ****
1200 '*****score & restart ****
1210 SCREEN 1:COLOR 1,0:CLS
1220 LOCATE 3,15:PRINT "TOMCAT"
1230 LOCATE 5,7:PRINT "you had ";TK;" confirmed kills"
1240 LOCATE 7,7:PRINT "so your top gun rating is ";
1250 IF TK<3 THEN TG$="Snoopy"
1260 IF TK>3 AND TK<6 THEN TG$="Red Baron"
1270 IF TK>7 THEN TG$="Tom Cruise"
1280 LOCATE 9,22:PRINT TG$
1290 LOCATE 25,1:PRINT "another flight Y/N ?":Q$=INPUT$(1)
1300 IF Q$="Y" OR Q$="y" THEN 1800 ELSE END
1310 '*****score & restart ****
1320 '**** enemy missile ****
1330 '*****score & restart ****
1340 EX=PPX: EY=PPY
1350 EMF=1:RETURN
1360 '*****score & restart ****
1370 '**** move en missile **
1380 '*****score & restart ****
1390 IF EMF=1 THEN EM=1000 ELSE EM=0
1400 IF EMF=0 THEN RETURN
1410 IF EX>160 THEN EX=EX-1
1420 IF EX<160 THEN EX=EX+1
1430 IF EY>180 THEN EY=180
1440 PSET(EX,EY),2
1450 SOUND 800,.2
1460 EY=EY+1
1470 IF EX>158 AND EX<162 AND EY>178 THEN 1490
1480 RETURN
1490 '*****score & restart ****
1500 '**** shot down   ***
1510 '*****score & restart ****
1520 SCREEN 1:COLOR 2,0:CLS
1530 EX=0: EY=0
1540 PLAY "mbn50n40n30n20n10n1"
1550 LOCATE 7,12:PRINT "You were shot down "
1560 LOCATE 9,10:PRINT "better luck next time"
1570 LOCATE 15,1:PRINT "Fly again Y/N ?":Q$=INPUT$(1)
1580 IF Q$="y" OR Q$="Y" THEN 1800 ELSE END
1590 '*****score & restart ****
1600 '**** draw and get plane ****
1610 '*****score & restart ****
1620 DIM E(768),V(368),F(1500),G(2500),H(3200)
1630 RNDS=3000: FU=10000: NSM=6
1640 RANDOMIZE TIMER
1650 SCREEN 1:COLOR 0,0:KEY OFF:CLS
1660 DRAW "18h212g2u8d8h212g218br8f2r2e2f2r2e2"
1670 DRAW "c2b12bu112d2r2u2b1612d2r2u2"
1680 GET (132,92)-(160,102),V
1690 FSET (160,100),0
```

continued p55

# TRANS AMP

by Bruce Kerr

The Listing:

```
1 GOTO 10
2 SAVE"TRANSAMP.BAS", A
3 END
10 CLS
100 REM transistor common emitter amplifier design (transamp)
105 PRINT TAB(7): PRINT "Transistor Common Emitter"
110 PRINT TAB(12): PRINT "Amplifier Design"
125 FOR I=1 TO 2500: NEXT I
135 INPUT "Maximum transistor VCE? ";V1: PRINT: INPUT "Maximum Collector current
<in mA? ";I1
140 PRINT: INPUT "Maximum Power Dissipation in mW? ";P1
145 PRINT: INPUT "Maximum junction temp in deg. C? ";T2
150 IF T2>0 THEN 160
155 PRINT: INPUT "Transistor thermal resistance?";T1
160 PRINT: INPUT "ico in ua? ";I2
170 PRINT: INPUT "hfe min, typical, max? ";B1,B2,B3
175 PRINT: INPUT "transistor vbe? ";V3
180 PRINT: INPUT "supply voltage? ";V2
185 PRINT: INPUT "quiescent collector current in ma? ";I5
190 PRINT: INPUT "%vcc across emitter resistor? ";V5
195 V5=V5*V2/100
200 PRINT: INPUT "ambient temperature in deg. c? ";T3
205 PRINT: INPUT "max % change for Ic? ";I4
210 PRINT: INPUT "hie in k-ohms? ";Z3
215 PRINT: INPUT "low frequency 3-db point in hz? ";F1
220 FOR X=1 TO 1000: NEXT;HX = 0
225 IF V2<.9*V1 THEN 240
230 PRINT "          supply voltage too high      "
235 HX=1
240 IF 15<.4*I1 THEN 255
245 PRINT "          collector current too high      "
250 HX=1
255 IF V2*I5<.8*P1 THEN 275
260 PRINT
265 PRINT "          Power dissipation too high      "
270 HX=1
275 IF V2*I5<.5*P1 THEN 290
280 PRINT "          use a heat sink      "
285 HX=1
290 IF T2<=0 THEN 300
295 T1=(T2-25)/P1
300 IF T3+V2*I5*T1>T2 THEN 315
305 PRINT "          junction temp too high      "
310 HX=1
315 IF HX<>1 THEN 325
320 PRINT: END
```

Building small electronic projects is a rewarding hobby and many can be made even for your PC.

Recently I had occasion to design an amplifier and splitter to allow one computer to feed many cassette recorders.

To make the prototype I started to work out the calcs by hand but found that by the third version I was spending a lot of time on the much smaller keyboard of the Casio.

The computer was sitting there begging me to write a program so here it is.

Unfortunately if you dont design common emitter amplifiers the program is of entirely no use to you except for the way it was written.

Well for those who do make amps the program asks for all the info it needs so all you need is the data for your transistor.

Remember my motto, if it does not work then make sure it looks good and blame it on the computer.

---

```

325 R4=V5/I5:R3=(V2-V5)/(2*I5)
330 I3=I2*(2^(T3-25)/10)-1
335 S1=14*I5/(100*I3)
340 S3=(B3+1)*B1*S1*I3\/(I5*(B3-B1))
345 S2=S1*S3/(S1+S3)
350 R5=(1+B2)*(S2-1)*R4/(B2+1-S2)
355 R1=R5*V2/(V5+V3)
360 R2=V2*R5/(V2-V5-V3)
365 Z1=R5*Z3/(R5+Z3)
370 R4=R4*1000
375 PI=3.1415927#
380 C1=5000/(PI*F1*Z1)
385 C2=5000000!/(PI*R4*F1)
390 C3=5000/(PI*F1*R3)
395 A1=B2*R3/Z3
400 A2=A1*A1+Z3/R3
405 A3=10*LOG(A2)/LOG(10)
410 A2=INT(A2*10+.5)/10
415 CLS: PRINT: PRINT "Design Specs:"
420 PRINT: PRINT "R1 = "; INT(R1*100+.5)/100;" K-ohms": PRINT "R2 = "; INT(R2*100+.5)/100;" K-ohms"
425 PRINT "R3 = "; INT(R3*100+.5)/100;" K-ohms": PRINT "R4 = "; R4;" ohms"
430 PRINT "C1 = "; INT(C1*10+.5)/10;" UF"
435 PRINT "C2 = "; INT(C2*10+.5)/10;" UF"
440 PRINT "C3 = "; INT(C3*10+.5)/10;" UF"
445 V4=.35*(V2=V5)
450 V6=V4/A1
455 PRINT "AV = "; A1
460 PRINT "AP = "; A2;"      "; INT(A3*10+.5)/10;" db"
465 PRINT "ZIN = "; INT(Z1*100+.5)/100;" K-OHMS"
470 PRINT "ZOUT = "; INT(R3*100+.5)/100;" K-OHMS"
475 PRINT "VIN MAX = "; INT(V6*1000+.5)/1000
480 PRINT "VOUT MAX = "; INT(V4*1000+.5)/1000
490 PRINT: INPUT "change parameters (y/N)? "; ZZ$
495 IF ZZ$="Y" THEN 10
500 PRINT: PRINT "Design completed": END

```

Φ

---

**continued from p53**

```

1700 DRAW "c2h4g4c6b6c2g6c3f6e4f6c2e6f4c3e6f4c2e10"
1710 GET (130, 90)-(165, 105), E
1720 PSET (160, 100), 0
1730 DRAW "c3h10g14c2h16c3g16c2f16e14f15c3e14f15c2e12f14c3e13"
1740 GET (125, 85)-(170, 110), F
1750 DRAW "c3h18g19c2h22c3g23c2f24e21f22c3e21f23c2e23f34c3e23"
1760 GET (80, 80)-(195, 145), G
1770 DRAW "c2h38g49c2h42c3g43c2f44e41f42c3e41f43c2e43f44c3e43"
1780 GET (90, 60)-(255, 185), H
1790 CLS: GOSUB 1800: GOTO 660
1800 '***** set up screen *****
1810 '**** set up screen *****
1820 '***** set up screen *****
1830 CLS: SCREEN 1: COLOR 0, 0
1840 LINE (0, 160)-(360, 200), 1, BF
1850 ' LINE (0, 0)-(80, 30), 1, BF
1860 ' LINE (81, 0)-(240, 20), 1, BF
1870 ' LINE (241, 0)-(320, 30), 1, BF
1880 VIEW SCREEN (0, 0)-(319, 160)
1890 LINE (160, 55)-(160, 65), 1
1900 LINE (155, 60)-(165, 60), 1
1910 CIRCLE (0, 200), 180, 1, .02, 1.6, 1.2
1920 CIRCLE (320, 200), 180, 1, .02, 1.6, 1.2
1930 PPX=100: PPY=50
1940 RETURN

```

Φ

The Listing:

```
1 GOTO 40
2 SAVE "MAZERACE.BAS", A
3 END
10 REM MAZERACE BY TOMAS
20 REM CONVERTED TO T1000 BY
30 REM JIM ROGERS
40 KEY OFF:SCREEN 1:COLOR 1,0:CLS
50 LINE (1,1)-(4,4),1,BF:DIM Q(12)
60 GET (1,1)-(4,4),Q
70 GOSUB 600
80 PRINT"LEVEL OF DIFFICULTY (1-3)"
90 D$=INKEY$: IF D$="" THEN GOTO 90:D=VAL(D$9):D=(3-D)*20+1
100 TI=0:C=0
110 CLS 0
120 REM SET UP MAZE AND BARRIERS
130 SCREEN 1
140 FOR I =1 TO 320
150 PSET (I,1),1:PSET (I,1),1:PSET (I,160),1
160 PSET (1,INT(I/2)),1:PSET (319,INT(I/2)),1
170 NEXT I
180 FOR J=16 TO 160 STEP 16
190 RD=4+INT(RND*160)+1
200 LINE(RD,J)-(RD+4,J-4),1,BF
210 IF INT((J/16)/2)=(J/16)/2 THEN 230
220 GOTO 250
230 LINE(1,J)-(280,J+4),1,BF
240 GOTO 260
250 LINE(40,J)-(319,J+4),1,BF
260 NEXT J
270 LINE (315,149)-(319,160),2,BF
280 REM
290 X=300:Y=153
300 PUT(X,Y),Q,XOR
310 K$="":X1=0:Y1=0
320 X1=X:Y1=Y
330 IK$=INKEY$
340 IF IK$ <> "" THEN K$=IK$
350 IF K$="S" THEN X1=X+1
360 IF K$="W" THEN Y1=Y-.5
370 IF K$="A" THEN X1=X-1
380 IF K$="Z" THEN Y1=Y+.5
390 PUT (X,Y),Q,XOR
400 IF POINT (X1,Y1)=1 THEN GOTO 470
410 IF POINT (X1,Y1)=2 THEN GOTO 520
420 PUT (X1,Y1),Q,XOR
430 X=X1:Y=Y1
440 TI=TI+1:REM PRINT "TIME";TI;
450 FOR T=1 TO D*2:NEXT
460 GOTO 320
470 C=C+1:LOCATE 25,13:PRINT"CAR #";C;"CRASHED";
480 FOR T=1 TO 1000:NEXT:LOCATE 25,1:PRINT"";
490 K$=""
500 IF C=3 THEN GOTO 540
510 GOTO 290
520 LOCATE 25,1:PRINT" FINISHED COURSE! TIME=";TI;
530 GOTO 550
540 LOCATE 25,1:PRINT"TIME =";TI;"TO WRECK THREE CARS";
550 FOR T=1 TO 2000:NEXT:LOCATE 25,1:PRINT" PLAY AGAIN <Y>/<N> ";
560 RS=INKEY$: IF RS="" THEN GOTO 560
570 IF RS="Y" THEN CLS:ERASE Q:GOTO 40
580 END
590 REM
600 PRINT"AVOID WALLS AND BARRIERS. IF YOU CRASH YOU START AT THE BEGINNING AGAIN";
610 PRINT
620 PRINT " S=RIGHT A=LEFT W=UP Z=DOWN
630 PRINT
640 RETURN
```

Converted by Jim Rodgers

# MAZERACE

Mazerace is a great coordination improver for young PC'ers. A maze is drawn with obstacles that must be avoided then you must drive the car to the red square at the end.

The controls used to drive the car can be reset to your choice by changing the letter values in lines 350 to 380.

If you crash into the green walls or obstacles you crash and lose a car. Be careful as you have only three cars and must start over if crashed.

Use "CAPS LOCK" when starting as there is no conversion to upper case. Perhaps after the game you can test your programming skill by writing the program to do the conversion.

Have fun and don't forget to belt up.

";

"

# HEATSINK DESIGN

by Bruce Kerr

In the electronics field and particularly in the power supply area a large amount of heat is developed in the transistors or IC's.

The heat developed can quickly cause an escalating problem known as thermal runaway. This is where the heat causes the device to draw more current which causes more heat and so on.

All of the common types of

transistors and chips will not survive temperatures exceeding 150 degrees centigrade so when thermal runaway occurs the devices will be quickly destroyed.

To help overcome this problem the cases of transistors etc are made to be able to accept some form of heatsink.

A heatsink is simply a device that assists in the transfer of heat from the case of the

device.

To properly design the requirements of an efficient heatsink many formulae must be calculated and this program does just that.

The program will question you for the data it requires and give the specifications of the heatsink you require. It is then a matter of consulting the catalogs to find one that suits.

## The Listing:

```
1 GOTO 100
2 SAVE"HEATSNK.BAS",A
3 END
100 REM heatsink design program
105 PRINT TAB(12) "HEAT SINK DESIGN"
120 FOR I = 1 TO 500: NEXT I
125 PRINT "All temperatures are to be expressed in" : PRINT TAB(11) "degrees
c"
130 PRINT: INPUT "Required power dissipation (watts)? ";P
135 PRINT: INPUT "Maximum ambient temperature? ";TA
140 PRINT: INPUT "Maximum junction temperature? ";TJ
145 PRINT: PRINT "Junction-case thermal resistance": INPUT " (degrees/watt)? "
";JC
150 PRINT: PRINT "Select type of mounting:"
155 PRINT" 1. Dry"
160 PRINT" 2. Grease"
165 PRINT" 3. Dry with mica washer ?"
170 INPUT" 4. Grease with mica washer ?";M
175 ON M GOTO 180,185,190,195
180 RC=.25: T$="Dry": GOTO 200
185 RC=.1: T$="Grease": GOTO 200
190 RC=.8: T$="Dry with mica washer": GOTO 200
195 RC=.4: T$="Grease with mica washer": GOTO 200
200 TS=TJ-P*(RC+JC)
205 RJ=(TJ-TA)/P
210 RS=RJ-(JC+RC)
215 TC=RC*P+TS: TJ=(RC+JC)*P+TS
220 IF TS<=55 THEN 240
225 TS=55: RS=(TS-TA)/P: TC=RC*P+TS: TJ=(RC+JC)*P+TS
230 PRINT: INPUT "Do you want to know the approximate sinkvolume required (Y?N)
";A$
235 IF A$="Y" THEN 250
240 GOSUB 275
245 GOTO 265
250 V=46.155*RS^(-1.52145): V=INT(V*100+.5)/100
255 GOSUB 275
260 PRINT: PRINT "Approximate heat sink volume required = ";V;" cu in."
265 PRINT: PRINT "Required heat sink thermal resistance = ";RS;" C/watt or less
"
270 PRINT: END
275 PRINT TAB(16)"Results using..."
280 PRINT: PRINT T$;" case-sink mounting:"
285 PRINT: PRINT "Maximum ambient temperature = ";TA;" C"
290 PRINT: PRINT "Maximum junction temperature = ";TJ;" C"
295 PRINT: PRINT "Heat sink temperture = ";TC;" C"
300 PRINT: PRINT "Case-sink temperature = ";RJ;" C"
305 PRINT: PRINT "Power dissipation = ";P;" watts"
310 RETURN
```

Yes folks, like bits through a shift register, these are the bytes of our memory. The saga of the PASCAL language returns.

Will BEGIN find an END? Will PROCEDURE become recursive (gasp!) and confuse the compiler.

All these things and more will be revealed in this month's spellbinding episode of (low voice!) PASCAL FROM THE BOTTOM UP (normal voice).

Hi, me again. The above is to compensate for last month's dryness. Yes, I was told!

Well this month we'll take it a little lighter, but keep in mind some essential points:

1. When you program in PASCAL you are also instructing the compiler.
2. Remember to plan out your program before you start.
3. Always break the program into small simple modules.

These highlights will help your learning of PASCAL and hopefully your programs.

Last 'episode' we had a problem to solve. Let's have a look at it now shall we.

A program is required to find the area of a rectangle specified by the variables shortside and longside that have the integer values of 3 and 4 respectively. It will further be required to get a value from the console to be returned in the variable depth and use the three values to print on the screen the total volume of the box.

Fun isn't it. Well I thought it was pretty silly as it would be easier to use a calculator.

It doesn't matter what the program is for it's the way you do it. In BASIC you could whip it out as:

```
10 shortside = 3
20 longside = 4
30 area = shortside *
        longside
40 input depth
50 print "Total volume
      =" ; area * depth
```

That was pretty painless so let's have a look at the PASCAL V1.0000000 (we may have a couple of revisions).

```
program area;
var
  shortside, longside, area
    :integer;
begin
  shortside := 3; longside := 4; area := longside *
    shortside;
  readln(depth);
  writeln('Total volume',
        area * depth);
end.
```

Well if that does the same as the BASIC program then I think

REAL that is any number both, positive or negative and with any fractional part eg.

5.146 and -234567.984 are real 4 and 45 can also be real

BOOLEAN that has a value of one of two logical states eg:

1 and 0, True and False and in some compilers Yes and No

CHAR that is a value that is interpreted to mean a ASCII character and of the range 0 to 255 eg:

'A' B ! % & are all type char

STRING that is a sequence of characters enclosed in single quotes eg:

'Hello sailor' is string  
'?' is also string

There are also ways you can make your own TYPE to create your own specific ranges of variables.

These methods are more complex than we need for the moment and besides I have not read that part of the book yet!

The next word starts our program so let's get into it. First we follow the instruction and assign values to our variables and assign area the result of an equation.

The READLN(@@@); statement is similar to Basic's Input command. There is several forms of READ which we will now examine. I have used @@@ to represent a variable identifier.

READ(@@@) gets an input from the keyboard, echo's it to the screen, and puts it into the variable enclosed in the brackets. Any type or number of variables may be enclosed in the brackets and separated by a comma.

READLN(@@@) is identical to READ except it places a carriage return at the end to start a new line.

READ(KBD,@@@) reads one key press from the keyboard and places it into the variable which must be type BYTE or CHAR. It is similar to the famous line A\$=INKEY\$:IF A\$="" THEN etc.

In all the above cases the input can be redirected to come from any input device eg : Comport, Diskfile etc but if I told you everything now I won't have an article for next month.

Well so much for getting it in now let's shove it out. The statement used for output variables, strings etc is WRITE.

Again there is many forms of the statement but we will look at just a couple.

WRITE(@@@) will print the contents of the variable on the screen at the current cursor position without writing a line feed.

WRITELN(@@@) does ditto and

# PASCAL from the bottom UP

by Bruce Kerr

I'll stick to old faithful. You may very well think that in many cases today though the power of PASCAL is not evident in this simple context.

Now we will tear the PASCAL version apart piece by piece until we find out exactly where its heart is Igor, the scalpel please.

The program heading is obvious and although we could discuss the significance of the headings place in the universe for many paragraphs we won't.

Next comes the variable declaration part. We have told the compiler to make space available for three variables of the integer type.

When the program runs it does not use the names shortside, longside etc but simply refers to them by memory position.

There are six main types of TYPE a variable can assume. Have you heard that if you assume something you will make an 'ass' out of 'u' and 'me'.

Well if you can make your variables one of the following TYPES :

INTEGER that is a whole number which positive or negative contains no fractional part eg. 2456789 and -34 are integers 2.123 or 5/8 are not

BYTE that is an integer number of the range 0 to 255. Byte is a subrange of Integer so they can be used in the same expressions. Byte can not be negative.

chucks a line feed on the end to move the cursor to the next line. Again the variables must be enclosed in brackets and separated by commas.

As can be seen in the example program literal strings enclosed in single inverted commas 'XYZ'.

Equations may also be substituted for immediate print out though the equation must be wholly within the separating commas or brackets.

The form and variety of the equations will vary across compilers (don't you just love standardization).

Some of the OPERATOR's (+,- etc) can be used for string as well as numeric identifiers. Refer to fig 1. for details on the functions of the OPERATOR's.

Most of the OPERATOR's are self explanatory so we'll only examine the odd ones.

Div is used only in Integer division only and returns the non-fractional part of the operation. eg 33 div 4 returns 8  
Mod is also used only in Integer division and returns the

remainder. eg 33 mod 4 returns 1  
And, Or, Xor are binary operator's used in Integer and Boolean expressions. They return a result according to the following:

AND : if both A and B are one then C is one.

OR : if either A or B are one then C is one.

XOR : if A or B but not both are one then C is one.

Although it sounds complicated they can only be 1 or 0 so that limits the possibilities. The following example illustrates the effect on integer numbers.

#### AND

```
A = 00011001 (decimal 25)
B = 00111101 (decimal 61)
C = 00011001 (decimal 25)
```

#### OR

```
A = 00011001 (decimal 25)
B = 00111101 (decimal 61)
C = 00111101 (decimal 61)
```

#### XOR

```
A = 00011001 (decimal 25)
B = 00111101 (decimal 61)
C = 00100100 (decimal 36)
```

If you are wondering why you would use these functions, think of the 1's and 0's as pixels (dots) on the monitor screen.

The last statement is the END.

PS. This months problem :

We need a program that will accept and total an unknown number of monetary inputs from the keyboard.

This total must then be subtracted from a further monetary input and all the values are to be printed in a columnar format with the total at the bottom.

The printout must have a heading input from the keyboard and be limited to 30 character length.

Well see how you go and we'll have an answer next month along with some real exciting info on Single and Multidimensional Array Types and Non-Variant Records. FUN STUFF EH!

Figure 1

OPERATOR	INTEGER/BYTE	REAL	STRING/CHAR	BOOLEAN
+	addition	addition	concatenation	----
-	subtraction	subtraction	----	----
*	negate	negate	----	----
*	multiply	multiply	----	----
/	-----	divide	----	----
div	divide	-----	-----	-----
mod	modulus	-----	-----	-----
and	binary and	-----	-----	logical and
or	binary or	-----	-----	logical or
xor	binary xor	-----	-----	logical xor
shl	binary * 2	-----	-----	----
shr	binary / 2	-----	-----	----
=	equal to	equal to	ASCII equal to	result ***
<>	not equal to	not equal to	ASCII not equal to result	
>	greater than	greater than	ASCII greater than result	
<	less than	less than	ASCII less than result	
>=	greater than or equal to	greater than or equal to	ASCII greater than result	
<=	less than or equal to	less than or equal to	ASCII less than or equal to	

\*\*\* means the result of the operation is Boolean

## PASCAL PROGRAMMING COMPETITION!

This is your chance to win, from the FREESOFT catalog, a selection of 5 disks.

What we are looking for is the best PASCAL program submitted over a 3 month period. Any type of program may be entered, ie. Game, Business, Utility etc, even just Procedure. BUT! we are looking for style and ingenuity NOT length.

The competition winner will be announced in the August edition of SOFTGOLD.



# IN BRIEF

## COMPUTER NEWS

### Record crowds for PC88 show

The organisers of the recent Personal Computer Show held at Darling Harbour, have claimed success with the numbers of local and international exhibitors and visitors well up on last year.

The combined show, including Office Technology 88 and Communications 88 had 194 exhibits and 40,000 visitors.

Once again the show attracted the industry's major players including Tandy, IBM, Unisys, Olivetti, NEC and Amstrad, to remain the nation's largest computer industry event.

New products on display included Amstrad's PC1640 portable, Epson's new PC portable, the Mega 2 and Mega 4 additions to Atari's ST range, Olivetti's M280 and M380 range of 386 based machines and the brand new Tandy 1000 TX and HX models.

### Leading Edge — super edge

Victorian companies now have access to one of the world's most advanced computing facilities.

A Cray X-MP supercomputer has been brought to Australia by Leading Edge Technologies for private and public sectors.

Leading Edge is the first Australian company to have the supercomputer available for commercial use, which will greatly help local and rural development according to Victoria's Minister for Industry, Technology and Resources, Robert Fordham.

### Laptop market for Tandy

The Tandy Corporation is buying laptop specialist, Grid Systems Corporation.

"This new division will enhance

our product development capability in laptop computers and provide an alternative marketing channel to the corporate user," said Tandy chief, John Roach.

Grid boasts some of the most advanced technology in the market and the move will give Tandy a laptop line as broad as that of the Japanese leader, Toshiba.

### Wang helps in talking to computers

Wang Australia has agreed to sign a partnership with the Federal Government in an Australian breakthrough in speech recognition by computers.

Using financial and technical help, Wang will support the Canberra College of Advanced Education in its project to allow computers to understand normal speech.

Headed by acting Information Sciences School head, Dr. Mary O'Kane, the project is aimed at showing speech recognition has practical and commercial use.

### MacIntosh to get support with three new products

Ashton-Tate's recently formed Macintosh software division has added three new products to support the Macintosh computer.

Full Impact, Full Write Professional and dBase Mac RunTime are the latest range of Macintosh products to support a broad range of users whether beginning or advanced.

Full Impact, a full featured, multi function spreadsheet includes a mini word processor, macro language support and formatting abilities that close the gap between spreadsheet and desktop publishing.

Full Write Professional, an advanced word processor, allows the user to create and manipulate text and graphics by combining desktop publishing and graphics capabilities.

The dBase Mac Runtime is designed for customers requiring a wide range of data base functions and can handle complex operations with little or no programming.

### Low-end PC's to get licence for Tandy's DeskMate

Users of low-end PC's can now have a common graphical interface due to the U.S. Tandy Corporation's decision to license its DeskMate graphical interface to software developers.

DeskMate allows users to switch between windows on a screen containing different applications or files. When used on a Local Area Network, users can share a common calendar and phone list and swap electronic mail.

The interface is designed to run on 8088, 8086 and 80286-based computers, including portables and can be networked through RS232C or NetBIOS networks.

Intertan Australia, who currently bundles Personal DeskMate 2 with its HX and TX systems, is still evaluating the more powerful Professional DeskMate according to Merchandising Manager, Wilfred Egert.

# COMPILED BY DARRYL SMITH

## TANDY about to announce PS/2 compatibles

Wide leaks from Tandy are expected to lead to the announcement of a PS/2 compatible system soon. Such an announcement would make them one of the first with a PS/2 compatible.

Analysts say that it is part of a wider strategy to boost Tandy beyond its niche in the home and small business market.

Tandy spokesman, Phillip Bradtmiller hinted that Tandy could be one of a number of manufacturers with such a product in the near future.

Tandy would be protected from IBM with legal cross-licensing agreements signed previously.

## Portable printer for Kodak

Diconix, a Kodak subsidiary, has released a printer for most models of portable computers which weighs only two kilograms.

The Diconix 150 portable inkjet printer is smaller than the average briefcase and can be picked up in one hand.

It is compatible with IBM, Epson, Toshiba, and other portable computers.

## TANDY scoop!

Tandy Chairman John Roach has announced the development of the Thor-CD, on which music, video or computer data can be repeatedly recorded and erased.

The Thor-CD will require a new generation of CD players capable of recording and erasing.

Tandy will speed the production of the new players by licensing the technology to big consumer electronics and computer manufacturers.

Tandy spokesman Mr Ed Jug said that it would take 18 to 24 months for the new players to reach the market.

It is available as a two, four, six or eight channel device with a 256 Kbyte memory. Its design features include input/output parallel channel settings, full queuing facilities, priority access mode, dynamic buffer memory allocation and low power dissipation.

Other members of the A-Series include serial/parallel converters, GPIB node adapters and protocol converters.

## Datashow shows all

Kodak's Datashow HR (High Resolution) projection system will be available from June this year.

The Datashow system, which was demonstrated at the recent PC88, allows presentation to a large number of people by projecting images from a PC monitor to a large overhead screen.

## JANDA show way!

With the help of John and Audrey Effer from Janda Australia, Tandy 1000 Hard Disks have gained immense popularity over the past few months.

Why's that you may ask? By operating the business out of their own home, it allows them to pass the savings on to customers. Savings such as their 20 Mbyte Hard Disk with controller cables at only \$750.00 (freight paid).

Making their debut just over 12 months ago, their first product became an instant hit. The Centech coloured disks gave customers a choice of fourteen different colours including lavender, pink, orange, yellow, red, brown and green.

Another useful product in their inventory is the Clean power board which guards against power surges. The six outlet board protects your computer, disk drive, monitor, printer etc. from those nasty invisible surges that can cause serious damage.

For more information on these products, see John who, incidentally, is the CoCo and IBM user group contact at Maryborough in Queensland.

## MPD RELEASES SCULPTOR 1.16

Availability of version 1.16 of Sculptor 4GL has been announced by MPD Australia.

As well as the addition of a full Structured Query Language and increased filesize limits, the version includes two major portability enhancements.

With the help of the Sculptor Development System, Sculptor applications can now be compiled on one system.

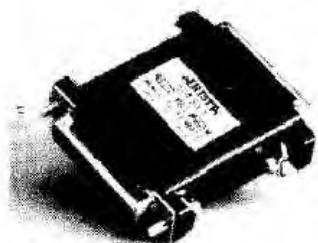
It also provides data and index file binary compatibility and allows Sculptor databases to be copied from one environment to another without re-indexing, by

using System-independent IEEE standard data formats.

And that's not all. Sculptor's file sizes have even been increased. The maximum data file size is 17 million records of up to 32K bytes in length, which makes a maximum length of 500,000 Megabytes and maximum index file size of 16,000 Megabytes.

Compatible Sculptor versions are available for over 100 machines ranging from micros to mainframes, and operating systems including UNIX, XENIX, AIX, UNOS, VMS, ULTRIX, OS9, UNIFLEX, QNX and MS-DOS.

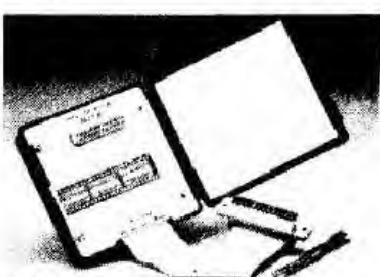
## **FOR YOUR COMPUTER**



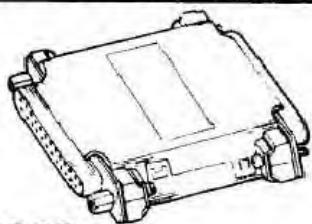
**RS232C  
NULL  
MODEM  
ADAPTOR \$13.35**



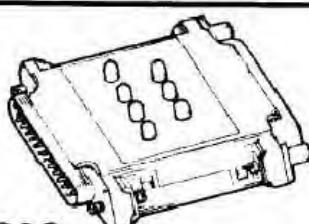
**RS232 DATA SWITCH  
WITH  
TESTER \$99.95**



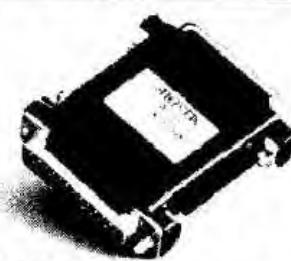
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### New Products From Goldsoft

#### The Compulink Modem

As previously announced, the Compulink on board modem is now available.

This modem is fitted directly on board in your Tandy 1000/IBM PC style computer and is then plugged into the RS 232 port.

It provides manual communication both with videotex services such as Viatel, and also with traditional ASCII services such as The CoCoConnection in Sydney.

At \$149.95, including software, this is THE lowest priced modem on the market!

#### More Cheap Disks

In May, we're expecting a huge quantity of disks to arrive. To get the price on these quality disks, we had to order more than we really need, so we're selling the first 2000 at \$1.00 ea. The disks are fully guaranteed and are supplied in boxes of 10.

#### Golddisk Offer Stands.

Order Golddisk this month and pay just \$99.95 for 12 months! Yes, we've weakened - so many of you ordered at this price last month, we enjoyed the popularity, so we're doing it again in May. Order your subscription to Golddisk NOW!



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Join in the fun.

# CONF '88

## Koonjewarre, Gold Coast, Qld.

### October 1st and 2nd

Conf '88 is at Koonjewarre on the Gold Coast of Queensland. The dates are 1st and 2nd October - that is, during the October school holidays.

Expo '88 will still be on at this time, so you can come up for Conf '88 and then see Expo '88.

Despite Expo '88, we've managed to hold prices to the same level as last year - quite a feat given the accommodation price rises during Expo in Queensland.

#### The Program:

This year, the theme is "Computers in the Family", so we're encouraging you to involve your family in the weekend.

Apart from the education themes, we'll have activities for the children, and something also for those who would prefer less computer involvement.

Koonjewarre offers some beautiful bush walks and a unique gathering of broad varieties of animal life for you to discover.

On the tutorial front, we'll have tutorials on all the usual subject areas covering both the Tandy CoCo and the MS DOS worlds.

Subjects such as OS 9 will be covered in detail, as will computer communications, Basic Basic, Advanced Basic, Pascal, C, Forth and much more.

There'll be the usual presentation dinner on the Saturday night where the winners of the prizes in the various competition categories will be announced.

And finally, there'll be an opportunity to renew friendships or make new ones; to meet some of the authors from our magazines; and to find the answer to those problems you've been experiencing all year.

#### Bargains!

Traditionally, advertisers from our magazines use Conf to move stock - so Conf '88 is the place to find the bargains! Bring some spending money!

#### Accommodation

Accommodation is in camp style rooms. Usually, there are about 10 beds to a room, but there are a few family rooms for early bookings.

Last year, those who shared the large rooms had a ball!

#### Rates:

##### Accommodated

One person .....	\$87.00
Family of 2 .....	\$155.00
Additional family members .....	\$52.00 ea

This price includes supper Friday evening, breakfast, lunch, dinner and supper on Saturday, and breakfast and lunch on Sunday. PLUS accommodation on Friday and Saturday nights!

##### Non Accommodated

	One Day	Two Days
One person .....	\$40.00	\$58.00
Saturday Evening meal .....	\$12.00	
Additional Family Members .....	\$31.50	\$45.50ea

This price includes morning tea, lunch and afternoon tea.

#### Payment

You may pay the total price when booking, or pay a deposit of \$20 and pay the rest off by 7th September, 1988.

---

#### CONF '88 Registration Form

Name:.....

Address:.....

Phone:..... Number of people:.....

I am interested in attending tutorials on the following subjects:.....

.....

Please find enclosed \$.....  
(Chq/Money Order/Bankcard/Visa/Mastercard)

Card No:.....

Signature:.....



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**Magazines, Tapes and Disks.**

**Australian CoCo Magazine -**

Articles and programs for Tandy Colour Computers Users:

Magazine:      Tape ( )      Disk ( )  
 12 Months \$39.95 ( )      12 Months \$123.75 ( )  
 6 Months \$24.95 ( )      6 Months \$ 74.25 ( )  
 1 Month \$ 4.50 ( )      1 Month \$ 16.50 ( )

... or charge my credit card monthly ( )

**Softgold Magazine -**

Articles and programs for Tandy 1000 and IBM Compatible computers:

Magazine:      Golddisk:  
 12 Months \$39.95 ( )      12 Months \$123.75 ( )  
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**The CoCo 3 Tape/Disk - Programs for your CoCo 3!**

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 #4 - \$16.00 ..... Tape ( )      Disk ( )

**The Best of CoCoOz - A Selection of Programs from Australian CoCo Magazine for Tandy Colour Computer Users!**

Each \$19.95.

#1: Education I ..... Tape ( )      Disk ( )  
 #2: Games 16k ..... Tape ( )      Disk ( )  
 #2: Games 32k ..... Tape ( )      Disk ( )  
 #4: Business ..... Tape ( )      Disk ( )  
 #5: Adventures 32k .. Tape ( )      Disk ( )  
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 #7: Graphics 16k .... Tape ( )      Disk ( )  
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 #9: Games 32k ..... Tape ( )      Disk ( )  
 #10: Education II .... Tape ( )      Disk ( )  
 #11: Education III ... --N/A-- Disk ( )  
 #13: Games 32k ..... Tape ( )      Disk ( )  
 #15: Utilities 16k ... Tape ( )      Disk ( )  
 #18: Grafix CoCo 2/3 . Tape ( )      Disk ( )  
 #20: Adventure 2/3 . Tape ( )      Disk ( )  
 #21: "Drenkald Adv" .. --N/A-- Disk ( )

**Hardware:**

Tandy Colour Computer:  
 CoCoConnection ..... \$219.95 ( )  
 Video Amp, with sound ..... \$ 35.00 ( )  
 Video Amp, without sound ..... \$ 25.00 ( )  
 The Probe ..... \$ 49.95 ( )

**Goldlink:**

Access Goldlink \*642# on Viatel with a 1200/75 baud modem to obtain help with your computer when you need it.  
 Annual subscription ..... \$44.95 ( )

**"Say the Word"**

Two curriculum-based speller programs for your Tandy Speech/Sound pack. Requires 32k Colour Computer and Speech Pack:  
 Tape only ..... \$29.95 ( )

**Bric-A-Brac**

12 blank tapes ..(C-30)..... \$18.00 ( )  
 1 blank tape ..(C-30)..... \$ 2.00 ( )  
 12 tape cases ..... \$ 5.00 ( )  
 1 tape case ..... \$ 0.50 ( )  
 10 DSDD disks ..... \$20.00 ( )  
 1 DSDD disk ..... \$ 2.50 ( )

**Books:**

Mico Help -  
 For your Tandy MC-10 computer \$ 5.00 ( )

**Back Issues:**

CoCo: Sep 84 - Dec 85 ..... each \$ 2.50  
 CoCo: Jan 86 - Dec 87 ..... each \$ 3.75  
 Mico: Aug 84 - Dec 85 ..... each \$ 1.00  
 Softgold: (CoCo/IBM content)  
 ... Mar 87 - Dec 87 .... each \$ 3.75  
 CoCo: Jan 88 - current ..... each \$ 4.50  
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**ADDITIONAL REQUIREMENTS:**

Goldsoft Price List, as at May, 1988.

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